

# FORESTRY AND IRRIGATION

Forest Management in Europe

Colorado Short Course in Forestry

Inland Waterways Commission

The Norway Poplar

Work in a National Forest

Deforestation in Syria

Planting in California Forests

An Educational Tree Campaign

A Ranger's Cabin

Timber Tests by Forest Service

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The American Forestry Association was organized in 1882, and incorporated in January, 1897. It now has nearly 6,000 members, residents of every State in the Union, Canada, and foreign countries. From its origin it has been the tireless friend of the forests.

The object of the Association is to promote the preservation, by wise use, and the extension of the forests of the United States; its means are agitation and education; it seeks to encourage the application of forestry by private owners to forest holdings, large or small; and it favors, especially, the establishment and multiplication of National and State forests, to be administered in the highest interests of all.

The Association seeks as members all who sympathize with its object and methods, and who believe that our natural resources constitute a common heritage, to be used without abusing and administered for the common good. Seeking to conserve our supplies of wood and water, the Association appeals especially to wood-producers and users, including owners of wood lands, lumbermen, foresters, railroad men, and engineers; and to those dependent upon equable stream flow, as manufacturers, irrigators, employers of water power, and those engaged in internal commerce.

The Association meets annually in Washington. It publishes, monthly, **FORESTRY AND IRRIGATION**, the magazine of authority in its special field. The list of contributors to this publication includes practically all persons prominent in forest work in the United States, making it alone worth the cost of Annual Membership in the Association.

The dues, covering a subscription to **FORESTRY AND IRRIGATION**, are as follows: Annual—For Annual Members, \$2; for Sustaining Members, \$25; Total, with exemption from all other payments—for Life Members, \$100; for Patrons, \$1,000.

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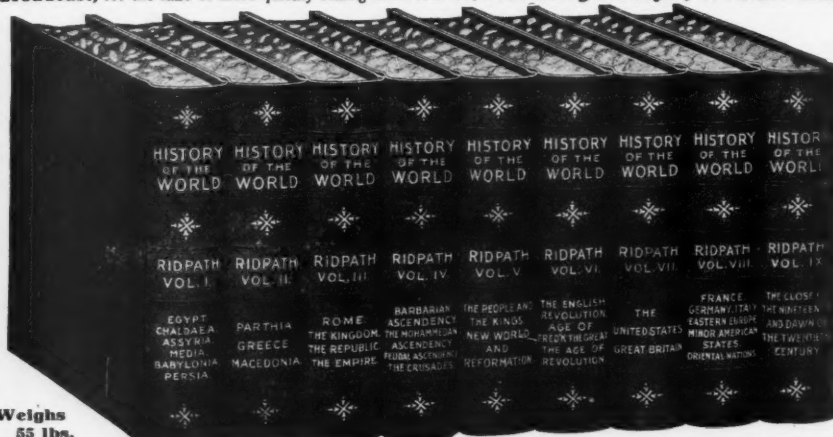
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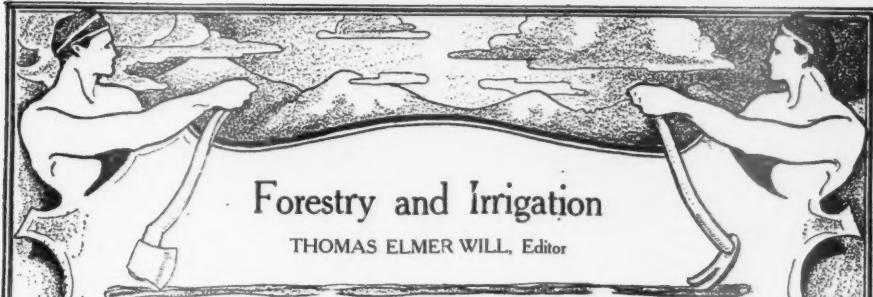
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OF MIAMI UNIVERSITY, OXFORD, OHIO . . . *Frontispiece*

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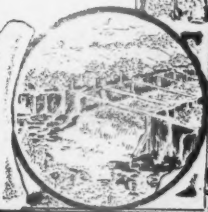
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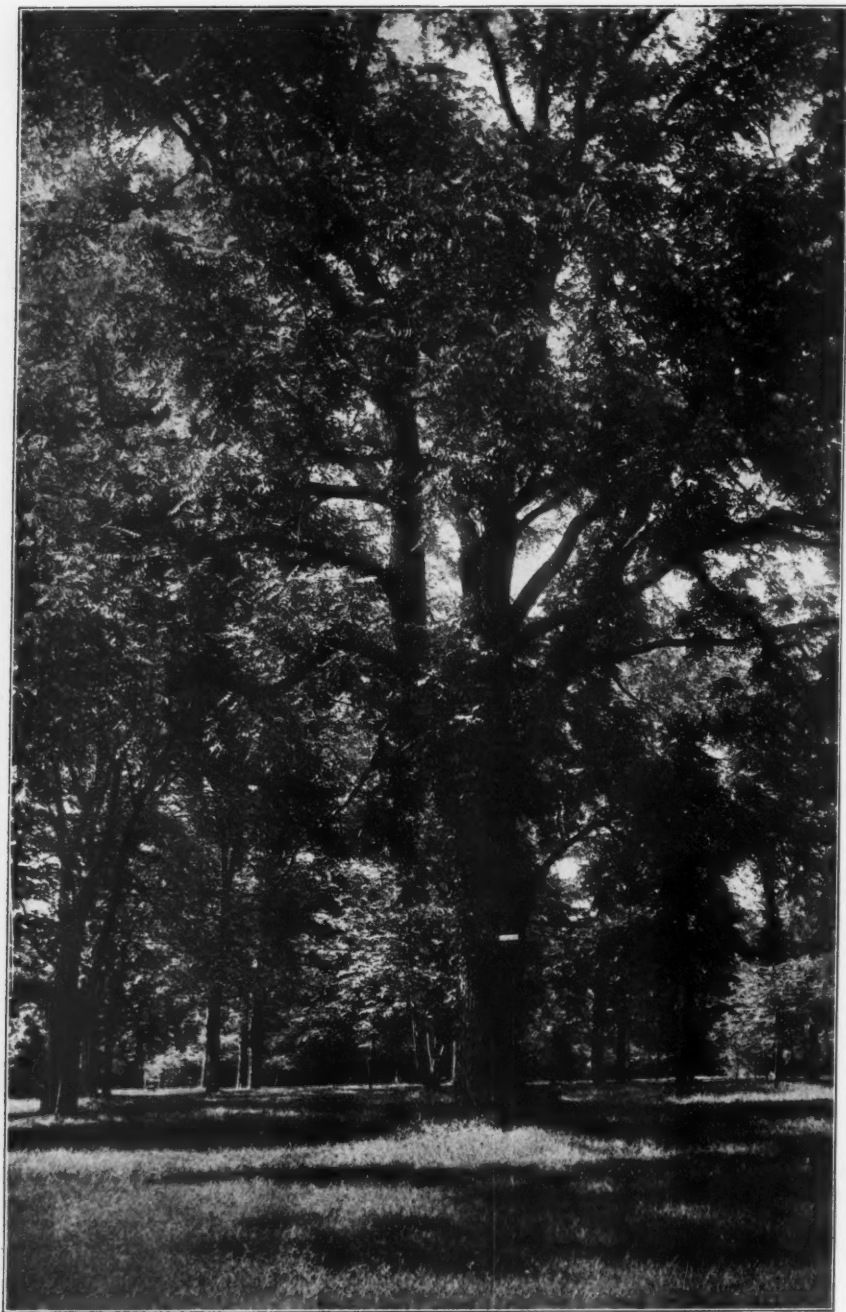
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JOHN N. SHERIDAN



**BLACK BEAUTY**

**A black walnut on the campus of Miami University, Oxford, Ohio**

From Kern's 1906 Report



# FORESTRY AND IRRIGATION

VOL. XIII.

MAY, 1907

No. 5

## EDITORIAL

### Arbor Day

A larger interest in Arbor Day, especially shown in the broadening of the educational features of the occasion, is good evidence that right ideas about the nature and use of the forest are to be impressed upon the minds of the younger generation. The proclamation of the President to the school children of the United States, in which the lessons of Arbor Day are so concisely and impressively defined, is printed on another page. An account of the successful observance of Arbor Day in Winnebago County, Illinois, contributed, upon request, by Mr. O. J. Kern, County Superintendent, is also printed, with a number of illustrations, in this number. Mr. Kern has fully grasped the broader significance of Arbor Day; and in the county institute and in personal visits to the schools, he gives the heartiest encouragement to nature study and instruction in the rudiments of arboriculture and forestry. Results similar to those accomplished in Winnebago County, Illinois, are possible elsewhere, a fact which should be kept in mind when reading this interesting article.

### New England Leads for Appalachians

A notable start has been made in New England toward a broad educational campaign for the Appalachian forest reserves. A combined meeting of the Twentieth Century Club of Boston, the Massachusetts Forestry Association, and the Appalachian Mountain Club, in Boston, on April 10, furnished the occasion. The meeting which was largely attended by representative New England people had for its guests Representatives Currier, of New Hampshire; Weeks, of Massachusetts; Higgins, of Connecticut; Haskins, of Vermont; Mr. Gifford Pinchot and Mr. Wm. L. Hall, of the Forest Service; and Mr. Philip W. Ayres, of the Society for the Protection of New Hampshire Forests, all of whom made brief addresses.

Altogether the most significant feature of the meeting was the marked unanimity of feeling that the movement for reserves in the Southern Appalachian and White Mountains is rapidly gaining ground. The failure of the House of Representatives to pass the bill at the last session of Congress is stirring public sentiment to

a breadth and depth never before reached. The south is rapidly awakening to the vast importance of the proposition. New England is unanimous in its favor.

#### Conditions and Prospects

Representative Currier showed this by pointing out that on the vote to secure the \$25,000 for the further examination of the reserves before Congress meets again, not a single vote was lost from the New England delegation, and the south gave it a large majority. Nevertheless, so far as the entire House is concerned, the vote showed but a small majority in favor of the provision. It stood 138 to 115, a majority of 23. The vote suggests how members may stand on the main proposition. Speaker Cannon is not alone in his opposition. Most of the House leaders and a considerable minority stand with him. The real value of the vote was to bring out the weak spots in the movement as it is represented in Congress, and to show the friends of the forest where to work.

Mr. Currier believes in the success of the measure in the next Congress if its friends will redouble their efforts for it. This view was strongly emphasized by every other Congressman present.

Mr. Gifford Pinchot spoke most encouragingly of the outlook. The changed public sentiment toward the proper use of our national resources is reacting strongly to help the movement. By the time Congress convenes in December the Forest Service will have ready its report on the proposed location and extent of the reserves, and their approximate cost. It will have also issued several reports showing the importance of the reserves to the industries of the Eastern States. Special plans are being taken to guard the Government against the necessity of paying exorbitant prices for lands.

#### Plan for a Broad Campaign

Following this meeting an important conference was held at the City

Club in Boston on April 12. It was attended by Messrs. Pinchot, Smith, and Hall, of the Forest Service and the American Forestry Association, and by representatives of the Massachusetts Forestry Association, the Society for the Protection of New Hampshire Forests, the Appalachian Mountain Club, and the American Civic Association. Plans of work were fully considered. The Forest Service will bring out a number of reports as soon as practicable, showing the importance of the reserves to the industries of the east. The various associations will maintain a broad, educational campaign, to the end that the whole country may be brought to a true appreciation of the great necessity of establishing these forests. These great associations will work together and with the American Forestry Association in this National undertaking.

The question is of National importance. The movement, likewise, must become National. Let every friend take hope. Let us lengthen our cords and strengthen our stakes. Let every member of the American Forestry Association make sure that his own community is brought into full support of the movement, and that his own Congressman is made to understand that his active interest in passing the bill at the first session of the next Congress is expected. *Begin at home.*

**\$5,000 Wanted for a Campaign of Education** With the first of May the American Forestry Association begins a movement to raise a special fund of \$5,000 for the exclusive purpose of carrying on a campaign of education to show the great National necessity of National forests in the Appalachian Mountains. At the last session of Congress it was said that public sentiment for these reserves was not strong enough; at the next session let this objection be impossible. Public sentiment will be strong enough when the facts are known. The American Forestry Association proposes to make

known the facts by sending lecturers throughout the country to show how vitally important the proposed National forests are.

Read the following letter which is being sent to a number of the public-spirited members and friends of this Association:

"DEAR SIR:

"The American Forestry Association wishes to ask your help in carrying on a campaign of education to secure the proposed Appalachian and White Mountain National forests. Are you willing to be one of 25 to contribute \$100 each for this purpose?"

"The failure of the last Congress to pass the Appalachian-White Mountain Bill delays for another year the protection of these mountains. Meanwhile, denudation goes rapidly on. The rivers are ceasing to be a blessing and are becoming a menace to contiguous districts and industries. The recent Pittsburg flood, which resulted in the loss of hundreds of lives and millions of dollars, is an example of what denuded watersheds mean. Public-spirited citizens, and the business interests of this country cannot allow the devastation of the Appalachian and White Mountains to go farther.

"Since 1900 the American Forestry Association, through the magazine, FORESTRY AND IRRIGATION, and the personal efforts of its members, has waged an unrelenting fight for these reserves. It has seen results—not in reserves established—but in widening and deepening public conviction that the thing is right, that the forests must be protected, and that the longer action is delayed the greater will be the cost. With full information on the subject, public sentiment must become so powerful that the next Congress will realize its plain duty to purchase these reserves.

"The Association now proposes to renew its educational campaign on broader lines than ever before. It proposes to send lecturers throughout the Eastern States to explain why the protection of these mountains is so im-

portant, and to organize a general movement to secure in the next Congress the establishment of these National forests.

"Five thousand dollars is needed. We want to begin with 25 one-hundred-dollar subscriptions, the remainder to be raised in other sums among the members of this Association.

"Will you not help by at once sending your check for \$100, or for a larger or smaller amount? No more important cause invites your consideration."

#### An Appeal to All Members

The Association hopes and expects to receive the twenty-five \$100 subscriptions. Its friends have never failed it when their aid was sought. If you receive the letter, kindly send the amount asked if you can possibly do so, and send it without delay.

But it is desired that every member of the American Forestry Association add his contribution to this fund. The fact that you are a member shows your interest in forestry. Do you sincerely desire to aid forestry in America? A great work is before us. It is to secure National forests in the Eastern mountains. The opportunity to help is now in your hands. Will you do so by sending at least one dollar for this fund? If you can send more, do so. Send as much as you can. *But at least send one dollar. Do it now.*

Address, Thos. E. Will, Secretary, 1311 G Street, N. W., Washington, D. C.

#### Our Talk for May

The interest resulting from our chat last month has been exceedingly gratifying, as it affords us further proof of the sincere and impersonal interest which prompts our many members to devote a portion of their time and attention to our work. That this is necessary is self-evident, as, with the exception of those who have made a careful study of the Forestry question, there are few people that can realize its far-reaching effects and

National importance, and how intimately it is connected with the material prosperity of almost every American industry.

The forest controls the regular flow of our many streams, thereby affecting those farms, factories and mills dependent upon them for water, for power, or for that supply of raw material which is necessary to their business prosperity; it intimately affects all connected with or depending upon the navigation or use of our large rivers and waterways; it figures in the balance sheet of every manufacturer of machinery for mills and factories, or for developing our water powers, and of those maintaining business relations with them; it is of personal interest to every taxpayer whose municipality depends upon the preservation of some forest for a steady source of water supply, the destruction of which calls for the expenditure of many additional millions by its taxpayers; it is of the utmost importance to every railroad company in the United States, and to the owners of its stock and holders of its securities; in fact, there is hardly anyone that is not to some degree financially affected by the Forestry movement and benefitted by our work.

The forests of our country have aptly been called "Our National Heritage," as we are all benefitted by this Divine inheritance with which our country has been so richly endowed, and all should be mutually interested in its protection and preservation.

Our Association has taken up the work of forest conservation as the National representative of the people's interests. Our actions, aims and motives are governed by that which is best for the Nation as a whole. We have no individual preferences, either or persons or of localities. Our aim is to determine the best solution of each of the National problems involved, and having once determined, we exert every effort to make our determinations actualities.

In carrying on our work we are dependent entirely upon the dues received from our members and upon the profits of this magazine, and therefore, the greater our membership, the more effective we become. An increase in membership helps the Association in its work; it increases the circulation and profits of the magazine; it enables us to secure more members, and to publish a better magazine; these in turn result in more members; our work becomes more rapid and our effectiveness greatly increased. We have started our summer campaign and hope to secure 25,000 members. You can help us in many ways. We will suggest one in this talk.

There are a great many organizations in the United States that take an active interest in the Forestry movement; many of our readers belong to one or more of them; many of them already have committees on Forestry, and in their particular localities are effectively accomplishing that education of the public which is necessary to the ultimate success of our aims; others have no such committees, but would gladly assist us in our work if they but knew how. Each of these is a factor of importance in its community, as we seek to be in the National movement. It was for the purpose of becoming closely affiliated with these organizations that we created our "Sustaining Membership." This membership was designed for all such organizations as might desire to join us as a body, and thereby establish another link in the chain of the Forestry movement. If each of our readers who belong to such an organization will see that his organization, if not already a sustaining member, promptly becomes such, much good will have been accomplished for the cause of Forestry, and our strength will be greatly increased. Take this up with your organization at its next meeting, and urge immediate action.

### French Experience

But the disposition to save at the spigot and waste at the bung-hole seems to be a common weakness. France permitted her mountain forests to be cut; then followed the consequences: erosion, denudation, the filling of streams and harbors, flooding, and destruction generally.

France next attempted to dredge out these rivers and harbors, spending millions thereupon, as do we with our river and harbor appropriations. But the mud came down the mountain sides faster than it could be dredged out from the rivers and harbors. The processes of redredging and refilling continued until engineers ascending the streams discovered the cause of the trouble: the forests which would have held back the soil, sand, gravel and boulders, were gone.

France next entered upon a great engineering enterprise, the erection of huge walls of masonry to catch the downpour of mud and other matter borne onward by the rains. Thus she found it necessary to purchase large areas of land and to expend vast sums of money.

In the interval between 1860 and 1900, France spent \$15,000,000, and acquired 400,000 acres of land, her annual expenditures amounting to over \$600,000. On reaching this point, however, she was not yet half through with the project upon which she had entered, for it contemplated the purchase of 425,000 acres more at a cost of an additional \$20,000,000.

And the land when purchased was largely desert.

How much better to have saved the forests originally! This would have prevented the original damage to farms, factories, rivers, harbors, and commerce; wood supply would have remained intact, the necessity of huge engineering works would have been obviated, and natural beauty and the climate would have been preserved.

### Other Old World Countries

Other countries, however, have passed through experiences sim-

ilar to that of France. The paper in this issue by Wm. K. Prentice, of Princeton University, on the fate of Syria, is striking. As G. P. Marsh in "Man and Nature," (p. 232) says:

"There are parts of Asia Minor, of Northern Africa, of Greece, and even of Alpine Europe, where the operation of causes set in action by man has brought the face of earth to a desolation almost as complete as that of the moon; and though, within that brief space of time men call the 'historical period,' they are known to have been covered with luxuriant woods, verdant pastures, and fertile meadows, they are now too far deteriorated to be reclaimable by man; nor can they become again fitted for human use except through great geological changes, or other mysterious influences or agencies of which we have no present knowledge, or over which we have no prospective control.

"The destructive changes occasioned by the agency of man upon the flanks of the Alps, the Apennines, the Pyrenees, and other mountain ranges in central and southern Europe, and the progress of physical deterioration, have become so rapid that, in some localities, a single generation has witnessed the beginning and the end of the melancholy revolution.

"It is certain that a desolation like that which has overwhelmed many once beautiful and fertile regions of Europe awaits an important part of the territory of the United States, unless prompt measures are taken to check the action of destructive causes already in operation."

Experience is a dear school. Whether we shall insist upon learning in no other is for us to determine. The calamities endured by the elder nations can be averted by us. We can preserve our forests if we will. With the rapid extension of our National forest policy in the Rocky Mountain region and beyond we have made an admirable beginning. This policy, whose wisdom in the west has already been demonstrated, can be extended to



the east. It should be thus extended. The need is imperative. There is no time to lose. Annually we sacrifice, through flood destruction, sums far greater than would be necessary to establish and maintain a conservative and statesmanlike forest policy in our Eastern and Southern States. Let our people awake to the situation. Let

them recognize the remedy—public ownership and administration of forest lands, notably those which control streamflow; and then let our people demand of their law-makers such legislation as will inaugurate this policy, and of their executives such an administration as will render it a complete success.

## NEWS AND NOTES

### Society of American Foresters

The Society of American Foresters listened to a paper by Mr. Raphael Zon, of the Forest Service, on April 11th, upon "The Tolerance and Intolerance of Trees." This paper brought out many biological, ecological, and silvicultural facts which contradicted the accepted theory that light is the prime cause of nearly all the silvicultural phenomena observed in the woods. Experiments by Fricke and many other investigators have shown that transpiration conditions, among which light is only a small factor, are the real cause of nearly all known silvicultural facts. The new experiments and the deductions that follow from them are of greatest practical importance to foresters, since they revolutionize the notion heretofore accepted of the role played by light, upon the consideration of which nearly all the work in the woods has been based.

Another paper was read by Mr. S. J. Record, on a form of fire insurance which is novel to American minds, namely, insurance of forest property. Mr. Record's paper dealt with the insurance of forests against fire in Germany, and gave a detailed account of the methods followed, the cost per acre, areas insured, and conditions affecting the cost of insurance. This is a phase in the development of forestry which is still remote in this country.

### Kansas Women's Clubs

Mrs. Catharine A. Hoffman, of Enterprise, Kansas, president of the

fifth district federation of women's clubs, has sent a leaflet to the women of her district, containing the following:

"It is my pleasure as well as a duty to call your attention to some important features of our work as an organized force for general helpfulness. I am proud to state that the great Fifth is always up and doing. The duties of the individual clubs to the state and district are always promptly attended to and our delegations at state and district meetings are second to none. Our modesty forbids mentioning all our honors bestowed upon us by the General Federation, the State and the District. In our very infancy we were a power; \* \* \* but our horizon widens; we have the Chautauqua work, the forestry interests, and all the reaching out that naturally grows from aspiring ideals of earnest women.

"The National Forestry Association has placed Enos A. Mills at the service of Kansas for part of March and April. \* \* \*

"Our yearly meeting of the State Federation will be held in Kansas City, Kansas, early in May. The District Federation will be held in Marysville, Kansas, in the fall. The Chautauqua work comes between, and is our meeting ground for recreation and inspiration. Clay Center, where your District President has charge of the Club work, holds her Chautauqua from July 17th to 27th. Our program is about complete and offers treats each day."



### Forests are Fundamental

Our forests, like our farms, are fundamental. They are not only objects of industry in themselves, furnishing investment for capital and employment for labor, and yielding products of immense value; but they bear a peculiar relation to many other industries, a relation that is fundamental. Without a supply of logs our saw-mills must discontinue business, without lumber our planing mills, box factories, and wood-working industries generally must disappear. Without the products of the wood-working industries, other branches of industry must be crippled. And so on, until all manufactories and all occupations are affected.

"Foresters are not only important to commerce and industry, but their presence exercises a benign influence on soil and climate. They tend to soften the asperities of a harsh climate, they aid in the conservation of moisture, and they check erosion.

"Moreover, they appeal to the esthetic side of our nature. Picture, for example, the barren and desolate aspect of a Georgia landscape without its setting of arboreal verdure.

"For these different reasons our forests deserve to be fostered."—*Southern Woodlands*, April, 1907.

### Southern Woodlands: a New Magazine

The Georgia Forest Association, whose organization we reported last month, has begun active work by bringing out a little magazine, to be published bimonthly, entitled "*Southern Woodlands*." It is a neat publication, with valuable contents. We hope for it and the new association much usefulness.

There are now several state associations publishing periodicals. In some cases the publication of a periodical, by a public improvement association of any kind, is the most practicable means of exercising influence. In some cases other lines of action will bring better results. It is much to be hoped that state forestry associations

will spring up all over the Union, but it will be a mistake for every state association as it organizes to start a paper of its own. This means a burden of expense and anxiety that might be avoided by uniting in the maintenance and use of *FORESTRY AND IRRIGATION* as the organ of all the associations, and whatever can be done to make this magazine more useful for that purpose will gladly be done. National, state and local organizations have no money to burn; and for the movement in general there are many things urgently requiring financial means besides the maintenance of periodicals.

### Captain R. P. Hobson, representative-elect from Alabama, is putting into effect a novel plan of distributing the scientific information of the Department of Agriculture among the farmers of his district.

With the idea of securing for his people the best information on agricultural methods, he has secured a number of experts from the various bureaus of the Agricultural Department, and will personally go with them through his district. He has arranged a number of meetings and is making every effort to obtain a large attendance at each one. At these meetings he will speak, and he will have the representatives of the Agricultural Department speak upon improved methods in farming and forestry. The tour will last from May 5 to May 17. The representative from the Forest Service is Mr. William L. Hall, who has charge of the examination of the proposed reserves in the Appalachian and White Mountains.

### Paper and Pulp Resolutions

At a meeting of the American Paper and Pulp Association, held at the Waldorf-Astoria Hotel, New York City, February 7, 1907, the following resolutions were adopted:

*Resolved*, That this Association calls upon all pulp manufacturers in the United States to adopt, to the fullest extent possible, conservative methods

in lumbering according to the approved principles of the science of forestry, and

*Further Resolved*, That this Association urges State governments to adopt more efficient means for the prevention of forest fires.

#### **A Woodland Gift**

At a recent meeting of the Maryland State Board of Forestry a gift of 40 acres of woodland offered by Mr. John M. Glenn of Baltimore, was accepted for a State Forest Reserve, making the third now owned by the State.

This latest addition to the Reserves, though small, is of great importance because it is well timbered and occupies one of the most attractive spots in the vicinity of Baltimore. It is on the main line of the B. & O. R. R., less than ten miles from Baltimore, near Orange Station, and at an elevation of about 300 ft., overlooking the beautiful Patapsco River valley.

The State Forester, in cooperation with the Maryland Experiment Station, has established a forest nursery at College Park containing about  $\frac{1}{4}$  acre, and consisting of both coniferous and broad-leaf species.

#### **National Irrigation Congress**

The 15th Annual Irrigation Congress will be held at Sacramento, Cal., September 2-7 next. It promises to be an important and valuable session. The plans include an interstate exposition of irrigated lands and products of forestry. The Congress is composed of delegates from farmers' clubs, irrigation societies, chambers of commerce, and other organized commercial bodies. It meets annually. Its purpose is to promote and develop wise and beneficial national irrigation and forestry policies, and discuss practical details of irrigation and forestry. Special railway rates have been requested for passenger and freight transportation.

#### **Dr. Fernow Goes to Toronto**

Dr. B. E. Fernow has accepted the deanship of the Faculty of Forestry in the University of Toronto, to be newly organized. There will eventually be three other instructors besides himself, and it is expected that the Government will set aside a large forest reservation for practice ground. The course will be a four-year, undergraduate course, leading to the degree of B. F. (Bachelor of Forestry), and after a practice of three years and submission of a thesis the degree of F. E. (Forest Engineer), will be given. The entrance requirements are higher than to most universities in the States.

#### **Forest Leaves: "Forest Leaves" for A Valuable Paper**

April contains a number of good articles. It represents the Pennsylvania Forestry Association, the oldest and one of the most useful of our State Associations. It was founded only four years later than the American Forestry Association. Its leading editorial is on the substitution of metal for wood in railroad ties, which the editor believes will soon be largely made. A protest is offered against the inexcusable cutting of trees too young to supply much timber. Chemical works are discussed in their relation to forestry. Slashings, imperfect trees, etc., should be utilized in chemical works instead of being left as kindling wood for forest fires. The present status of proposed legislation in Pennsylvania is given. The two illustrations are striking views of gigantic cypresses at Chapultepec, in the City of Mexico.

#### **Massachusetts Forestry Association**

The April issue of "Woodland and Roadside" contains an interesting retrospect and forecast of the Massachusetts Forestry Association. This body was organized in 1898; it has 800 members, and \$10,000 of invested funds. Its work is to combine the educational and practical. In 1899 it secured the enactment of the tree warden law; and in 1904, the appoint-

ment of a State Forester, to whom it acts as "next friend." It has aided manfully in the campaign for the Appalachian reserves, and will continue to do so. It desires State forest reserves, better fire protection, equitable taxation of forest lands, better management of private forest lands, and reforestation of waste lands. It has a record and a future.

Like the American Forestry Association, the Massachusetts Association regrets the necessity of expending funds in working for membership, and appeals to its members to aid it in this work that its full energies and means may be devoted to the primary objects of its organization.

#### Timber Slughter

**Ex-Judge Howland,** President of the Association for the Protection of the Adirondacks, in his annual report predicts that there will not be left a single stick of timber in New York State twenty-eight years from now outside of the constitutionally protected forest preserves, if present conditions continue.

Judge Howland told how on Sunday, March 25, 1903, a certain New York newspaper, credited with a circulation of 800,000 copies, consisted of eighty pages. "This single edition," he said, "required the product of 9,779 trees, 60 feet high and 10 inches in diameter at breast height, which, if planted 40 feet apart, would represent a forest area of 351 8-10 acres."

**Money for The** Legislature of  
**North Dakota** North Dakota has  
**Forest School** appropriated \$25,000  
for a new building for the North  
Dakota School of Forestry.

#### The Sports- men's Show

A unique and helpful exposition has just been held in Boston. The New England Forest, Fish and Game Association, which has nearly completed its second year, opened on March 30th the second annual Sportsmen's Show, to continue until April

13th. The public enjoyment of this show and its influence are such that it now seems fair to assume a continued existence for the Association and repeated exhibitions of the general character of this one. The prospectus of the Association says:

"The Association was organized in 1905, by twenty gentlemen of Boston, 'for the purpose of giving public exhibitions of such character as to create interest in our forests, fish and game, and the intelligent preservation of all these.' As fast as this is understood, a tremendous interest has been awakened, for the American public is at last fully alive to the danger that the deer will disappear as the buffalo did, that the woods of Maine are being decimated, that the great forested tracts of various parts of the country are in real danger of becoming arid, treeless sections, that many species of birds and animals are practically gone already, and that unless stringent restriction is placed upon the killing, many more are doomed within a very short time.

"Many formal societies have been organized to provide for these various crying needs. The largest and most important, because their objects for work include the others, are of course the various forestry associations.

"In plain words and in the simplest terms, to preserve the forests is to preserve the wild animals, birds and fish of the forests; to relax the utmost of vigilance over the forests is to allow selfish commercial interests to rob the country of not only its game and birds, its fish and its beauty, but even to endanger its fruitfulness and to change its climate. However, this is thoroughly understood, and by legislation, by the formation of active forestry associations, and by the lately-awakened public interest—most powerful of all—through publication in the press and by books, magazines and pamphlets, the subject is being kept prominent, and the fight is now begun.

\* \* \*

"Those associations which deal di-

rectly with the preservation of game and game fish and birds, like the forestry associations, are apt to use all their endeavors in the prosecution of their direct objects. Furthermore, practically all such associations assume that personal interest in a given subject exists in a majority of people, and do comparatively little educational work with the public in a broad way.

\* \* \*

"There seemed a function, therefore, for an association which should cultivate a public interest in all these objects, and should do educational work. This was assumed by the New England Forest, Fish and Game Association, which was formed at a particularly felicitous period. For though the American people have always been out-door-loving people, the most remarkable phenomenon of recent years has been the rapid increase of interest in out-of-doors. One magazine after another has sprung into expensive success on the strength of it; the whole profession of landscape gardening has come into being because of it; never were there so many sportsmen in the woods, and never was interest in animal life so great. There is a whole literature of animal life, all written within a generation; there is a whole group of men who have made their entire fame on their studies of animals and wood lore. The public is willing to know more, and welcomes the workers who contribute to that knowledge.

\* \* \*

"To this public desire, the modest success of last year's Sportsmen's Show is attributable, and to this end the whole arrangement of this year's show has been made—to instruct rather than to entertain, but to instruct in subjects so fascinating that learning is pleasure of a keener sort than mere entertainment could furnish.

\* \* \*

"The collections for the most part deal with the wood and stream life in New England. They cover the woods themselves in forestry exhibits, the game fish of lake and river, the migrating waterfowl and game birds, the fur-bearing animals and the deer, and

include many lessons in natural history."

We are informed, finally, that the show is not run for financial returns. The expense involved in placing it before the public amounts to many thousands of dollars. Last year's experience, however, has seemed to warrant this expenditure; and if the public shall have shown this year its appreciation of these exhibits, the management promise to continue them and render them year by year more elaborate, that the objects for which The New England Forest, Fish and Game Association was founded may have speedier fulfillment.

**Seedling Forest Trees Available** The State Forester, F. W. Rane, State House, Boston, gives notice that he can distribute to a limited number of those who apply 150 white pine and 150 white ash two-year-old trees suitable for setting out for forest purposes. Send \$1.00 with order. Express charges will be advanced. No orders received after April 30th. One order only per person will be accepted, as the object is to disseminate the trees quite generally. Should the supply become exhausted the \$1.00 will be returned. It is understood that these seedlings are to be planted in Massachusetts.

Set the plants where they are to grow, 6x6 feet apart, as soon as they are received. Do not allow roots to get dry. It is hoped that this one-fourth acre planting will create an interest in doing more planting later.

This is a good movement. It is well to interest school children in tree planting as well as some other things. The love of trees thus fostered will make these children, when grown, more ready to recognize the economic importance of forestry. In a circular to school superintendents, Professor Rane advises: "Make it a plan to have the children collect tree seeds when they are ripe, and ultimately transplant them upon the many thousand acres of waste land in our commonwealth."

# LESSONS FROM FOREST MANAGEMENT IN EUROPE

BY

Raphael Zon, Forest Inspector, Forest Service

The United States has now definitely settled upon its National forest policy—to care for and manage the public forests with the aim of protecting the sources of our rivers and streams, of maintaining a permanent and stable supply of timber and at the same time of making the National forests not only self-supporting, but a

source of revenue to the nation.

The European countries have for more than a century pursued this policy, and the way in which they have succeeded in the management of their forests may be instructive to us in the present stage of our development. The following tables, if interpreted aright, tell the story:

Table 1.—Forest Areas of European countries as compared with the United States.

COUNTRY.	YEAR OF DATA.	TOTAL FOREST AREA.	FOREST AREA IN PER CENT OF TOTAL AREA.	AREA OF GOVERNMENT FORESTS.	GOVERNMENT FOREST IN PER CENT OF TOTAL FOREST AREA.
			Per cent.	Acres.	Per cent.
Saxony .....	1895	924,296	26	417,142	45
Wurtemberg .....	1895	1,451,979	33	483,357	33
Baden .....	1895	1,352,597	41	243,043	18
Switzerland .....	1899	2,110,552	21	93,201	4
Belgium .....	1895	1,209,557	17	62,427	5
Bavaria .....	1895	5,814,310	33	2,347,399	40
Prussia .....	1895	20,314,727	26	6,803,787	33
Austria .....	1874-93	23,996,250	32	2,530,000	11
France .....	1900	23,367,558	18	2,691,581	12
Roumania .....	1891	4,860,000	15	2,430,000	50
Sweden .....	1898	49,390,325	49	18,640,800*	38
British India .....	1898-9	64,689,300	12	51,192,000	79
Russia .....	1898	812,640,600	26	620,190,000	76
Hungary .....	1885-94	69,144,300	27	3,512,700	5
United States .....	1905-06	500,000,000	26	106,999,138	21

\*Of this 10,062,900 acres belong to the Government, the rest is either owned by the Government in partnership with other institutions or is merely controlled by the Government.

One striking feature brought out by these tables is the relation which exists between the expenditures for the management of the National forests and the revenues derived from them. We notice that Russia, with its vast forest areas—the greatest proportion of which still remains unsurveyed and unprotected—spends on an average

less than 7 mills per acre and derives a revenue of only 3 cents per acre per year, while little Saxony, with a forest area of only 417,142 acres spends annually \$2.32 per acre, but receives a net revenue of \$3.96 per acre. Russia's low expenditure per acre does not really give a true idea of the actual

expenses because only a part of the forest area is brought under systematic management, while the rest still remains unprotected and uncared for. If, therefore, the expenditures were divided not by the total area of government forests, but only by the part which is actually being managed, the expenditures per acre would appear much higher.

Of all these nations, the United States spends the least for the care and protection of its National forests, and its revenue is as yet less than its expenditures. In the case of the United States it is only fair to say that the policy of the wise use of the National forests has just begun, and there has not, as yet, been time for the proper adjustment of expenditure and revenue. In spite, however, of the short period since the government forests came under forest management, there has been a remarkable change. For the year 1903-4 the revenue from the forest reserves was \$58,436, and the expenditures \$379,150.40. In the year 1904-5, during the latter part of which the reserves passed under the control of the Forest Service, the revenue was \$60,142, and the expenditures \$508,886, while for the last fiscal year the revenue was \$767,533, and the expenditures \$779,519.29. There is a fair promise that during the next five years the revenue will increase at the rate of \$500,000 annually, and that the reserves will soon show a large balance on the credit side of the ledger.

The relationship between expenditures for the improvement of the forest and increased revenues is especially brought out when the expenditures and revenues of one country are compared for a series of years. Russia, which in the vastness of its forest areas closely resembles the United States, may be taken as an illustration.

	Expenditure Million Dollars.	Net Rev- enue Mil- lion Dol- lars.
1885.....	2.75	4.00
1886.....	2.74	4.10
1887.....	2.80	4.25
1888.....	2.79	5.20
1889.....	2.90	6.40
1890.....	3.05	6.05
1891.....	3.12	5.65
1892.....	3.16	6.55
1893.....	3.25	7.95
1894.....	3.45	9.80
1895.....	3.68	11.05
1896.....	3.88	13.25

The history of forest management in the old countries teaches us a lesson which we should never forget. It is only money spent in the *permanent* improvement of the forests that results in constantly increasing returns. Expenditures which tend merely to exploit the forest without improving it may for a time increase the revenue, often to a large extent, but the increase can never be of a lasting character. Gradually, as the forest becomes depleted, the revenue must fall off. France is a good illustration of this principle. Within the last forty years a decline in the gross yield has been noticeable there. Thus, while the decade from 1860 to 1869 showed a total gross revenue of \$8,000,000 per year, the following four decades showed a gross yield of \$7,000,000, \$5,500,000, \$5,400,000, and \$5,700,000, respectively. The probable cause of this present decrease is the striving after quick returns and the conversion of high forest into coppice forest, which was so characteristic of the French forest policy in the past.

Only expenditures for such purposes as providing an efficient fire patrol and fire protection, building roads and trails to make the timber more accessible, increasing the forest capital by restocking the blank places within the forest, or planting waste lands to forests, and preparing plans of exploitation based on adequate knowledge of the present stand and its productive capacity, promise a constantly increasing revenue in the fut-



ure. The revenues may not respond at once to such expenditures, but they are wise and necessary investments, and, as time goes on, they will bring a return that is more than commensurate.

In a new country such as ours, where the supply of timber is rapidly dwindling under the pressure of an immense demand, and the stumpage prices increase correspondingly at the rate frequently of 15 per cent a year, the national forests may bring in in-

creasingly large revenues without adequate expenditures for their proper development; but such increases in revenue must be of an ephemeral character, because they are not accompanied by the improvement of the forest. No matter how large the increase in revenue may become through the increase in stumpage prices, we must not forget that it is only the increase in the *productivity of the forest itself* which really adds to the public wealth.

## A SHORT COURSE IN FORESTRY

BY

W. B. Sheppard, Colorado College

THOSE who, like the writer, have, almost from its beginning, closely watched the growth of the Forest Service, are well aware of the great change wrought by President Roosevelt's order of December 17, 1904, which placed the Service under the civil service law. In the early days, competent men for the reserves were not easily found. The Rocky Mountain appointee seldom knew anything about forestry, and too often was not more than half in sympathy with the purpose of the experiment; while the Eastern man, though sometimes better trained, did not know how to handle the people whose use of the reserves was being more or less curtailed and regulated. These facts account, in large part, for the trouble which beset the Bureau of Forestry in its early history.

The problem of how to secure a force of men, familiar with local conditions and having some knowledge of forestry, and at the same time in complete accord with the reserve idea, is now in a fair way to be solved by the civil service rules. A secure tenure of office, the absence of politics, and the certainty that faithful service brings promotion have begun to at-

tract a class of men not heretofore obtainable. The last two years have vastly improved the personnel, and month by month the improvement continues. The standards are rising constantly. It is now necessary not merely that a ranger should be able to pack and ride a horse, but that he should know quite a little about surveying, tree-planting, stock diseases and the like. This sort of knowledge the cowboy, who by nature is best fitted for working in the wilds, does not ordinarily possess. On the other hand, the forest school graduate is not tempted by the strenuous life of the forest guard or ranger, to say nothing of the meager salary, averaging \$75.00 per month, on which he must maintain himself, and a string of from two to nine horses. Hence has risen the crying need of a short course in technical forestry, given at some point near the Rockies, at a time of year when the forest officers have the best opportunity to attend.

This work has just been attempted by the Horticultural Department of the Colorado Agricultural College at Fort Collins, where a short course came to an end March 2. In view of its pioneer character—no such work having

before been undertaken in this country or in any other—the success of the venture was remarkable. The course was mapped out by Prof. Wendell Paddock, head of the department, and Prof. H. P. Baker, the latter a graduate of the Yale Forest School, who has spent years in government work in the Rockies, and is now head of the Forest School at the Iowa State Agricultural College, conducted the course. The teaching corps of the Agricultural College was reinforced by several forest officers, by the head of the Colorado College School of Forestry, by professors from the Golden School of Mines, the State Veterinarian, the president of the State Forestry Association, and others.

The course was made as practical as possible. The mornings were given to class room work and demonstration; the afternoons, to field work, and the evenings chiefly to lectures illustrated by lantern slides. In the class room were handled such topics as the structure and growth of trees; origin of soils and relation to plant life; structure and habits of insects injurious to trees; the characteristics of plants poisonous to stock; ear-marking and cattle branding; origin and mining of commercial minerals; selection of tree-seed and handling and planting of seedlings; land entries and transferal; forest-fire protection; map-making; principles of irrigation, and construction of canals and reservoirs; regulation of contagious stock diseases; protection of game; construction of telephone lines, roads and trails; administration of forest reserves, and the like. Every afternoon, in the field, instruction and actual practice were given in timber estimating and cruising; use of forest instruments; scaling logs and lumber; surveying; location of mineral and other claims; determination of tree species; use of pack animals and camp equipment, and in general almost every conceivable phase of the forest officer's actual work on the reserve. The evening stereopticon lecture dealt with

such subjects as the conservation of snowfall by forests; the effect of deforestation on soil denudation and floods, etc., etc.

The class was somewhat remarkable, both as regards its size and the character of the men comprised. Almost half were actually engaged in work on the reserves, in the capacity of supervisor, ranger or guard. Some of them came hundreds of miles to attend, even forfeiting pay during their absence from duty. There were also a number of recent graduates of western colleges, while such vocations as that of cowboy, timber-cruiser and lumberman were also represented. On the whole, it may be said that a brighter or more enthusiastic lot of young men is seldom brought together. Every man present expected to reap some practical, personal advantage, and attendance was in almost every case a matter of pure business. Of those not already in the Forest Service, most if not all will be able to pass the civil service examination for ranger, and some have hopes of doing better.

Every year the work of the forest officer is becoming more specialized and demands a higher and higher order of intellectual equipment. The mountain boy, whose services must necessarily be most frequently put under requisition, has not the time or money to devote to a long period of technical preparation, and even if he had, it is doubtful if he would deem the probable returns worth the outlay; he would be more likely to choose some other profession. So far, then, as relates to the minor forest officers, the increasing demands of the service cannot readily be met except in some such way as this. And upon the minor forest officers, the men actually in the field, the success of the work, for at least some years to come, must largely depend; because their dealing with the ranchmen, miners and cattlemen determines the popular attitude in each locality, and in the face of hostile public sentiment, but little can be accomplished. The forest school proper

will supply the trained forester, but it is to the short course like this that he must look for competent assistants. In this connection it is worth noting that the men who have come into the service during the past two years, after taking the civil service examination, are those who are now most rapidly winning promotion.

It is not the Forest Service alone, however, that will profit by a short course like this, doubtless the fore-runner of many. The old-time forest officer, as has been noted, was too often, by want of training, or lack of appreciation of the real significance of the theory underlying the attempt to preserve the forests, incapacitated, from rendering efficient service. This was bad for the forest administration, but it was still worse for the people under the jurisdiction of the incompetent man. Hence the stimulation of interest by the short course, both in forest officers and among outsiders, is bound to prove of advantage to the

communities most nearly concerned, in or near the reserves. They all receive better service than they have ever had before. The short course will be especially potent in disabusing the minds of these communities of the notion that the reserves are administered with any purpose in view except to accomplish something useful for the whole people, through the conservation of the supply of timber for building purposes and ranch use, and of water for irrigation. Lastly, the fact that the local administration is in every case in the hands of men who owe their berths not to political pull, but to proven fitness, will go far to create confidence in the entire work of the Forest Service. The inclusion of the forest officer under the civil service rules has perhaps done more for the permanent advancement of the cause than any other one thing. It is safe to say that, under its present head, the Forest Service will never experience any change in this respect.

## THE INLAND WATERWAYS COMMISSION

THE President on March 16 appointed an Inland Waterways Commission composed of the following men: Hon. Theo. E. Burton, chairman; Senator Francis G. Newlands, Senator William Warner, Hon. John H. Bankhead, Gen. Alexander MacKenzie, Mr. W J McGee, Mr. F. H. Newell, Mr. Gifford Pinchot, Hon. Herbert Knox Smith.

In explanation of the creation of the commission, he stated that he was influenced by broad considerations of national policy. The control of our navigable waterways lies with the Federal Government and carries with it corresponding responsibilities and obligations. The energy of our people has hitherto been largely directed toward industrial development, connected with field and forest and with coal and iron, and some of these

sources of material and power are already largely depleted; while our inland waterways as a whole have thus far received scant attention. It is becoming clear that our streams should be considered and conserved as great natural resources. Works designed to control our waterways have thus far usually been undertaken for a single purpose, such as the improvement of navigation, the development of power, the irrigation of arid lands, the protection of lowlands from floods, or the supply of water for domestic or manufacturing purposes. While the rights of the people to these and similar uses of water must be respected, the time has come for merging local projects and uses of the inland waters in a comprehensive plan designed for the benefit of the entire country. Such a plan should consider and include all the

uses to which streams may be put, and should bring together and co-ordinate the points of view of all users of water. The task involved in the full and orderly development and control of the river systems of the United States is a great one, yet it is certainly not too great for us to approach. The results which it seems to promise are even greater.

It is common knowledge that the railroads of the United States are no longer able to move crops and manufactures rapidly enough to secure the prompt transaction of the business of the nation, and there is a small prospect of relief. Representative railroad men point out that the products of the Northern interior States have doubled in ten years, while the railroad facilities have increased but one-eighth, and it is becoming obvious that no development of the railroads possible in the near future will suffice to keep transportation abreast of production. There appears to be but one remedy available—the development of a complementary system of transportation by water. The present congestion affects chiefly the people of the Mississippi Valley, and they demand relief. When the congestion of which they complain is relieved, the whole nation will share the good results.

While rivers are natural resources of the first rank, they are liable to become destructive agencies as well, endangering life and property, and some of our most notable engineering enterprises have grown out of efforts to control them. It was computed by Generals Humphreys and Abbott half a century ago that the Mississippi alone sweeps into its lower reaches and the Gulf 400,000,000 tons of floating sediment each year (about twice the amount of material to be excavated in opening the Panama Canal), besides an enormous but unmeasured amount of earth-salts and soil-matter carried in solution. This vast load not only causes its channels to clog and flood the lowlands of the lower river, but renders the flow capricious and

difficult to control. Furthermore, the greater part of the sediment and soil-matter is the most fertile material of the fields and pastures drained by the smaller and larger tributaries. Any plan for utilizing our inland waterways should consider floods and their control by forests and other means; the protection of the bottom lands from injury by overflows, and uplands from loss by soil-wash; the physics of sediment-charged waters and the physical or other ways of purifying them; the construction of dams and locks, not only to facilitate navigation, but to control the character and movement of the waters; and should look to the full use and control of our running waters and the complete artificialization of our waterways for the benefit of our people as a whole.

It is not possible properly to frame so large a plan as this for the control of our rivers without taking account of the orderly development of other natural resources. Therefore the President asks that the Inland Waterways Commission shall consider the relations of the streams to the use of all the great permanent natural resources and their conservation for the making and maintenance of prosperous homes.

Any plan for utilizing our inland waterways, to be feasible, should recognize the means for executing it already in existence, both in the Federal Departments of War, Interior, Agriculture, and Commerce and Labor, and in the States and their subdivisions; and it must not involve unduly burdensome expenditures from the National Treasury. The cost will necessarily be large in proportion to the magnitude of the benefits to be conferred, but it will be small in comparison with the \$17,000,000,000 of capital now invested in steam railways in the United States—an amount that would have seemed an intolerable burden half a century ago. Yet the investment has been a constant source of profit to the people and without it our industrial progress would have been impossible.

The questions which will come before the Inland Waterways Commission must necessarily relate to every part of the United States and affect every interest within its borders. Its plans should be considered in the light of the widest knowledge of the country and its people, and from the most diverse points of view. Accordingly, when its work is sufficiently advanced,

the President will add to the Commission certain consulting members, with whom its recommendations are to be fully discussed before submission to him. The reports of the Commission are to include both a general statement of the problem and recommendations as to the manner and means of attacking it.

## THE NORWAY POPLAR

BY

E. G. Cheyney, Assistant in Forestry, University of Minnesota

A tree suitable for windbreak or lawn planting, of rapid growth, perfectly hardy, and free from the dirty, objectionable habits of the willows and cottonwoods, should be of interest to everyone, especially to those who live in the West in the prairie sections. The Norway poplar, brought into the country by an unknown peddler of unknown origin and destination, would seem to be such a tree.

Hearing some rumor of the tree, the writer made a careful study of the plantations on the farm of Emil Sahler, Waseca, Minn. Mr. Sahler kindly explained his methods of handling the cuttings and gave the history of the plantations on his farm.

The tree is evidently a form of the staminate cottonwood, but of exceptionally rapid growth, good form and fine wood fiber. The cuttings do not start readily unless soaked in water for about six hours previous to setting out. Cuttings started in this manner in May had, by August, attained a height of  $4\frac{1}{2}$  to 6 feet. Those a year older were from 10 to 12 feet high.

One hundred and sixty-seven eight year olds situated on the brow of a hill, a rather dry location, spaced four feet apart each way, showed an average height of 35 feet and an average diameter at breast of 5.26 inches.

One hundred and ninety-six ten-year-old trees planted 2x4 feet on lower, moister ground made an average height growth of 40-45 feet, and

an average diameter at breast height of 5.62 inches. The lower relative diameter of the group is due to the crowded condition of the stand.

Twenty-one of the ten-year-old trees which when three years old were transplanted to a fence row, and spaced 12 feet apart, showed an average height of 50 feet and an average diameter of 9.54 inches, the largest being 60 feet high and having a diameter of 11.6 inches. None of the foregoing were cultivated after the first two years.

Four fourteen-year-old trees which were widely spaced and well cultivated had an average height of 55 feet and a diameter of 13.9 inches.

Forty-six sixteen-year old trees planted in a fence row around the house in the shade of some silver maples, and never cultivated, showed an average height of 50 feet, and an average diameter at breast height of 9.4 inches, the largest being 11.7 inches.

The growth of these trees under various conditions shows an extreme susceptibility of the species to cultivation and to the supply of light. The growth is good in every case, but a little cultivation and plenty of light increase it remarkably. It has so far taken on a cleaner and straighter form than most of the cottonwoods, and the wood seems to be denser and of a little better quality.

Not enough experiments have been made with this tree for us to know anything definite in regard to the ulti-

mate use of the tree or of the wood, made speak well for it. The family but the trials which have already been name is the only thing against it.

*Table Showing Growth of Norway Poplar on Emil Sahler's Farm, Waseca, Minn.*

TREE NO.	AGE YEARS	SPACING FEET	AVE. HGT. FT.	AVE. D. B. H. IN	MAX. D. B. H. IN	SITUATION AND TREATMENT
.....	3-12	½	4½-6	.....	.....	Cultivated in nursery rooms.
.....	1 3-12	2x4	10-12	.....	.....	" 1st year, Dry hill.
167	8	4x4	35	5.26	9.0	" " " Low ground
196	10	4x2	40-50	5.62	9.6	too close, Transplanted at 3 yrs. old.
21	10	12	50	9.54	11.6	Cultivated 1st year, To fence row.
4	14	12	55	13.9	16.0	Always cultivated, good location.
46	16	12	50	9.4	11.7	Planted in fence row under silver maples, no cultivation.

## WORK IN A NATIONAL FOREST

By Charles Howard Shinn, Supervisor of Sierra National Forest, Northern Division.

ONCE, when I was a ranger, several of us, who had been reading a little forestry, concluded to try some experimental thinning of a small, second-growth pine forest on the edge of Crane Valley, in the Sierra Reserve. Those were the adverse days when Binger Hermann controlled our destinies.

Four of us were swinging our axes, that pleasant morning in April; three of those four are now supervisors, in charge of National forests, so rapid has been the growth of American forestry since 1904. In fact, if I am permitted to include one ranger recently transferred with the view of promotion in a few months, the old Sierra North has developed six supervisors, and one assistant State forester, out of plain rangers.

How joyously we worked in the clear sunshine, comparing observations, telling stories, studying the young forest, discussing the best trees to leave, and giving our reasons for doing so. We trimmed our logs and piled them on the brush, at a safe distance from the trees; we wrote about it in our note books; we felt from our souls that we were not mere

policemen and patrollers that brave morning.

Perhaps in more Reserves than the Sierra, intelligent rangers of the days before the earthquake (of February, 1905) may have had their ancient and classic joke about the old-time blanket-sheet reports, which joke runs about as follows:

"October 1, 1904. Patrolled out of my blankets; patrolled to the creek; built a fire; patrolled to breakfast, and patrolled after my horse. Patrolled all day; patrolled to supper, and to bed. Cold night; used my report blank for extra cover; patrolled to sleep."

As we swung our keen axes, whetted every hour to razor-edges, and noon approached, one of the rangers said: "I do hate to let up on this work, even for grub." Down by the rim of a little stream the smoke of a cooking fire arose; a ranger's busy, cheerful wife was preparing dinner for the crowd; in the grass beyond, the horses were picketed; over all were blue ridges of pine, snow peaks, silent, enormous, and the bluest of cloudless skies.

Along the road came some neigh-



bors, and county officers, who stopped, astonished, and laughed to see us.

"By George!" said one. "I never saw rangers do any work before. I thought that all rangers did was to ride about, and hold down their jobs."

I struck my axe into a tree, went over, shook hands, introduced myself, and the rest:

"Gentlemen," I replied, "these are rude samples of the coming brand of rangers—the Gifford Pinchot species. They are going to set the pace, up here in the Sierras, and the best of you will have to hustle to do more real work in a day."

"It begins to look like it," responded one, "but why should you work so hard?"

"Partly for fun; partly because rangers are foresters, and forestry aims at taking care of timber, so as to have more for the people to use."

"What no one understands, up here," said another, "is why the Government ties up so much property. It is taken away from Madera county."

"Suppose we begin to show you, by hard, faithful work, that our methods give the people more timber, more grass for their cattle, and more prosperous homes; that every industry thrives and grows; that the Forest Reserve becomes your best friend. Will you give us time to 'make good'?"

"Sure, we will; that's business."

Then we shook hands; they drove off, up the valley; the ranger's wife called us to dinner, and I read aloud at the noon hour a magazine article on forestry. Then we finished our work, saddled up, and went home.

In all the Reserves, only three or four years ago, this kind of thing was happening; plain, every-day rangers were getting into touch, all alone, without any real leadership, under no definite system, and hampered by strangely unsuitable regulations. But they were nevertheless making friends unconsciously, and the people of California were dealing fairly with them.

Last year, when a thousand worn-out forms and methods had been consigned to rubbish piles, when the Reserves were thrilling with life, it was my good fortune to meet most of the Forest Supervisors of California in a convention. There the view of public service and public duty "to all and for all" was clearly presented. There, and to these men, the supreme, the immortal principle was enunciated—that principle which lies at the foundation of Americanism—that there can be no higher service on earth than the service of the Nation, which means the service of all the people, at all times, in all places, while thought and strength last.

I looked at those plain, everyday Americans, who had worked their own way up from the ranks, and saw how tremendously in earnest they were, how absolutely they were living by and for that doctrine. Into their hands, and those of a few more like them, the Nation, this year of 1907, has committed (in California alone) some twenty National forests, embracing about twenty million acres, and worth, prospectively, two hundred million dollars.

The make-up of men is always wonderfully important to me; it is really about all we have to work with in this world; and so many of our helpers give up, reach their limits, "go stale" far too easily. But all through that convention a thousand things tried these supervisors, and they rang true as steel; calm, faithful, capable, confident, they were shaping the National forests for the betterment of the people. They had pride, but it was restrained; they had ideals, but they were tempered and balanced by practical considerations. Better than all else, they had come to love their work, and their leaders, and they comprehended with entire clearness that they were chosen as the protectors of the last remaining reservoirs of great National resources. The burden of the thought steadied, but did not crush

them; like Plutarch's men, they stood up, plain, large, and strong.

Then I began to understand more fully the reasons why California, leading all the American States, I think, in the number and extent of her National forests, is heartily supporting and always will support the policy of the Forest Service. Our forest guards, our rangers, and our supervisors are very close to the people. We are of them, and they are of us. Only the other day our rangers came together saying, "So many people in this neighborhood have been nice to us this year that we are going to 'put up' and give a free party, and a supper." This they did, and everyone came. One young man and his girl drove 20 miles over frightful roads, to attend the "First Rangers' Ball."

Out here in Sierra, we know the campers that come from the valley every year; we watch the children grow up; we tell them stories, and show them how to build safe camp fires. Everybody comes to our camps and cabins; we go and "take pot-luck" with everybody else. Open are all camps of the stockmen, open are the summer villages of the lumbermen; the teamsters, the miners and prospectors, the hunters and fishermen, and the "real tourists" from far-off cities, are friends of ours. But we do more than merely make good cheer with all these, and with all who have any relations with the National forest; we convince them, day by day, that the whole scheme, the whole forest system, is good, not bad; we teach them to believe in it, just as we do, and so the heaven spreads, year after year, to other communities. Other Supervisors, too, in other National forests, are working just as hard along these lines. Of course, California cannot help becoming interested in the game.

But there is more than this to the situation out here. The commonwealth of California long ago learned to some extent (not fully—no community knows that, as yet) the material

values of forests, mountains, waters, irrigation systems, power-plants and intensive horticulture. Californians have a profound confidence that some day forty or fifty million people will live here, in strength and happiness. Then, also, the glory of the High Sierras has taken hold of the souls of thousands of men and women, so that Californians ask from their National forests, not merely material results, but the bread that feeds the spirit.

Dealing with, working for, this people, the foresters find life a wonderfully interesting affair. Over and over, not once, but fifty times, in the growing years as I have ridden through the mountains on the business of the Service, I have had experiences that would make the warp and woof of novels, histories, volumes on social science. Sometimes I tell them to writers of books, so as to have these things crystalized, for the old forms are passing away. I have often had people say in an unwilling, surprised way—the beginnings of better understanding—"You rangers are mighty careful;" "You rangers mean to do right;" "You uns is dealin' fair with us." Once it was: "Lord! you an' your good lady was down to our cabin, an' the neighbors was in. I never seen nobody make themselves so common as you folks did that evenin'."

When I begin to tell stories about life in the Forest, I never know when to stop. I have been out all night long with the rangers, fighting a forest fire, and all the next day, and all the night after that, and we had no sleep, and only a little bacon and coffee, till we won. Once a storm of wind came and swept wild-fire across our lines, wiping out, in one swift pulse, all our breathless toil of twenty hours. Then I heard rangers sob like children, and swear like pirates; then they ran back to new lines of defence, worked twice as hard, met the sweeping flames and held them.

"Stick to it, boys," said one of our mountaineers. "Stick to it; save all

them little pines to grow up, an' make cabins for some man's babies."

Men of this type knew the old Reserves, when we were only "campers;" when rangers had \$60 a month, and usually but four or five months' work in a year. It was hard for a man with a family to "stay with the job." But many men who could make twice as much at other work became interested, felt the possibilities ahead, and stood like rocks through years of discouragements. In many cases this was because they had brave and intelligent American wives who were carrying their full share of the work, and had learned to believe in the whole thing. These women's names will long be remembered in the pioneer history of the California Reserves.

Just as soon as we began to "size up" the local problems we tried to place our rangers where they could have homes of their own. The Reserve was districted and officered; sites for cabins were selected; pastures were fenced; plans were begun for future orchards and gardens. The beginnings were small and rude; at first we could spend but \$5 in money on a cabin, and that went for nails. We made everything else ourselves, after the fashion of Colonial times. Then, as the new leaders began to sell timber, and charge grazing fees, and we had that precious, longed for gift, a Budget, to use for permanent improvements, we took new courage and built cabins with real windows, doors, stoves, chimneys; we had house-warmings, and Saturday Night Forest Club Meetings.

The activities of a National forest of the present time are so numerous and varied that even the catalog is appalling. When we had six men, we needed sixteen; and now that our winter force is sixteen we need sixty. Let any one take the Use Book of the

Service, and mentally tabulate its requirements, fitting them to office and out-door work on a National forest, and he will wonder how the men in harness find time to eat and sleep. Think of it in another way. If you had an estate of a million acres, and put twenty men there to handle it "for the greatest good to the greatest number," to foster and yet care for all its resources, to protect its wild creatures, forests, and natural beauties—and if you nevertheless expected them to make it more than pay expenses—you would certainly have quite a contract on hand. But every forest supervisor that I know of keeps saying to his rangers: "Boys, we must build it up, stroke on stroke; we must make this Forest self-supporting, and more; we must lead in the procession; we must be able to help the new little sisterhood of Forests, who need sun-bonnets."

Here I rest, for when I was a youngster I used to be told that "enough was as good as a feast." What I have written is of no possible value or interest excepting as it gives to you, my reader, (unseen, remote, but perennially charming) some new and more definite sense of life in one National forest, in one State. From such a glimpse, however brief, it may be that you shall feel more in touch with the daily work of the men and the women of the Forest Service, all the way from Luquillo, Hawaii, and Afognak, to Tonto and Montezuma, to Coeur d' Alene and Kootenai, to Elkhorn and Missoula, to Niobrara, Ruby Mountains and Cascade, to Black Hills and Sevier, to Mount Rainier, Olympic and Medicine Bow. It is a great list of striking names, and the names stand for luminous facts in American history. The forester is abroad, shaping for good, and good only, our coming civilization.



# DEFORESTATION IN SYRIA AND ITS EFFECTS

BY

William K. Prentice, Princeton University

TWO visits to Northern Syria, involving altogether eight months of camp life and almost daily travel, have convinced us that this country furnishes a most telling example of the irreparable damage done to a fertile and prosperous region by the destruction of its forests. The part of Syria which I know best lies within a triangle, whose northern boundary is the road from Alexandretta to Aleppo (Haleb), and whose apex is toward the south, at Kal-at il-Mudik (the ancient Apamea). The sides of this triangle are about sixty miles in length: its western border is from fifteen to thirty miles from the coast; it contains three ranges of hills, from three to five thousand feet high.

Within this district there are now the ruins of perhaps a hundred and fifty ancient towns, which flourished in the fourth, fifth and sixth centuries of our era. Many of these were towns of some two or three thousand inhabitants; but some of them were much larger, containing thirty or forty thousand, or even more. Many of these sites are now entirely deserted: others are occupied only by two or three families, living in squalid dwellings, constructed from the materials of the ancient buildings: very few, modern settlements contain as many as a thousand. Antioch (Antakiyeh), however, which in the fifth century had a population of at least half a million, is now rated at about thirty thousand. Kal-at il-Mudik, which in the Roman census, taken at the time of the birth of Christ, was rated at one hundred and seventeen thousand, is now said to have a population of about eight thousand. These two cities are in the Orontes valley. The rest of

this country is now without water and, for the most part, absolutely without soil: it is consequently incapable of supporting a large population. Obviously this was not the case always; and I believe, for the following reasons, that the present barrenness and desolation alike were caused by the loss of trees which once protected the hillsides and preserved the water supply.

The hills of which I am speaking belong to the chain of mountains which extends from the Amanus in the north to Lebanon in the south, and which furnished the lumber for the Nearer East for more than two thousand years before Christ. There is record of lumber imported from these mountains as early as 2650 B. C. Lumber was plentiful in Northern Syria in the early Christian centuries, as is proved by the enormous number and size of the ancient buildings found throughout this region, all of which were evidently roofed by wooden trusses. The few "Cedars of Lebanon" are now the sole survivors of these great forests, and are so unique that, though difficult of access, they have become an object of pilgrimage.

It is evident that the forests had been cut from the region back of Antioch and Kal-at il-Mudik as early as the fourth century after Christ. Otherwise these hills could not have been so densely populated as they were at that time and during the next two centuries. But there was still plenty of soil on the hillsides. This is proved by the fact that many buildings are found here with a base-moulding some two feet above the bare rock on which the walls now stand, and below this moulding the stone of the walls is

roughly dressed, showing the level to which the soil originally reached. Moreover, it is clear that large areas among these hills were under cultivation. The wealth of the ancient communities in this district consisted, to a large extent, of their olive-yards and vineyards. The grapes of Apamea were known in Rome as Malaga grapes are known among us. Everywhere, among these ruined towns, are to be found the remains of wine-presses and oil-mills, in such size and abundance that it is clear enormous quantities of grapes and olives were produced. The ordinary press of this region has a vat, from six to ten feet square, hewn in the solid rock. In these vats, when used for oil, the olives were first crushed by rolling over them stone rollers, two feet in diameter and six feet or more in length, then pressed by means of a huge lever, whose end was fixed in a socket of stone, generally mortised into the living rock. Such vats were found in the outskirts of every ancient town in this country: in one instance, there were more than a hundred in and about a ruined town that can hardly have contained more than two or three thousand people.

Certainly this region flourished for a time. Many of the inhabitants lived in luxury and refinement, the evidences of which in the ruins of their houses and churches, public halls, colonnades and baths, form a striking contrast to the conditions of modern life in the same localities. Possibly many of the lower classes lived in huts of mud brick, as they do now; but there are the remains of very many private dwellings, of two and three stories, with two- and three-storied porticoes, all constructed of the finest masonry, with columns and capitals, mouldings and doorways beautifully

executed in fine white limestone; while many of the churches would beautify any modern city.

But even in the time of greatest prosperity the soil was kept on the hillsides only by terrace walls, and the people were wholly dependent upon cisterns for their water supply. No forests had been left to store up the rainfall, and the beds of the ancient brooks were dry. The winter rains, washing suddenly down the unprotected hills, made torrents in the valleys and then passed quickly away, sweeping with them soil which quieter streams would have left undisturbed. When once this process had begun, not even constant vigilance could prevent the soil growing steadily thinner and the crops poorer every year. A series of wars, earthquakes, and other calamities accelerated the ruin; but this ruin was already inevitable. Early in the seventh century all building activity seemed to have ceased. Many of the inhabitants doubtless moved away: those who remained seem to have become impoverished and shiftless. Then the terrace walls tumbled down and the hills were left naked. What little soil remains now is lodged in and about the ancient houses, or in pockets in the rock, or in those valleys where the fall is least and where the outlet is best choked by the formation of the hills themselves. It will never be possible to restore any part of the former prosperity of these Syrian communities; but the ruins of their handsome buildings stand as monuments partly to the misfortunes, but chiefly to the improvidence, of the former inhabitants. We Americans will do well to profit by their experience, and to protect our forests before it is too late.



# RECENT PLANTING ON SOUTHERN CALIFORNIA NATIONAL FORESTS

BY

John D. Guthrie, Forest Assistant, Forest Service.

THE planting season that has just closed on the Southern California National forests has been one of unusual activity. The rainfall for the winter has been unusually heavy, and all the conditions for successful planting were good. A total of nearly 180,000 young forest trees have been planted on the National forests of Southern California, and 75,000 of these have been planted by the forest rangers. The National forests on which the planting was done were the San Gabriel, San Bernardino, Santa Barbara, and the two newer National forests, the San Luis Obispo and the Monterey. Over 20,000 seedlings were set out on the San Gabriel, and 38,000 on the San Bernardino.

For the first time planting by the forest rangers was tried, instead of hiring labor especially for the purpose, as has been done heretofore. Accordingly, 2,000 seedlings were shipped to each ranger on the San Gabriel and San Bernardino forests, and a smaller number to the rangers on the Santa Barbara, San Luis Obispo, and Monterey National Forests. In all cases the seedlings used were sent from the Pasadena Planting Station. The rangers were given practical instruction as to the proper methods of planting, and they soon learned the knack of setting the trees.

On the San Bernardino National forest it so happened that a dozen of the rangers were in one camp in City Creek building fire-breaks, under the direction of Ranger E. B. Long, when the seedlings were received. The work on the fire-break had been greatly interfered with by the unusual number of rainy days, and the tree-planting caused a further delay, but the men went at the new work enthusiastically, and soon finished it up, al-

though they were compelled to ride a long distance to and from work each day.

The seedlings were shipped by express from the Pasadena Station; they were well packed and were received in good condition, although shipped during a spell of unusually hot weather for the month of February, even for Southern California. The men were organized in crews of two men each and, armed with mattock, trowel and pail, went at the work in earnest.

The planting sites were selected purposely to represent a great variety of conditions. North slopes, protected spots, open spaces in the chaparral, and small flats were the usual sites used, though several thousand Knobcone pine seedlings were put out along the north edge of the newly-constructed fire-break, which is laid out on long ridge. The sites were at elevations varying from 1,000 feet to 3,000 feet. The plants were for the most part three-year stock and were good, healthy seedlings; in the case of the Bigcone spruce, the plants were really too large and thrifty to be handled successfully. The species planted were Knobcone pine, Bigcone spruce, Coulter pine, Jeffrey pine, Incense cedar, Torrey pine and the Indian deodar (*Cedrus deodora*).

The interest that is being manifested throughout Southern California in the question of forestry, and especially reforestation, is encouraging and is steadily increasing. This interest was shown in a very practical way this winter, when Supervisor R. H. Charlton secured the co-operation of ranchers, water companies and towns along the foothills in the building of fire-breaks for the better protection of the reserve.



# AN EDUCATIONAL CAMPAIGN IN BEHALF OF TREES

BY

O. J. Kern, County Superintendent of Schools, Winnebago County, Illinois,  
and author of "Among Country Schools"

One generation has cut down millions of noble trees; a second generation has grown up somewhat indifferent to their influence; and now a third must be educated to appreciate the economic and aesthetic value of trees. It is, therefore, a fine thing to get the children of the country schools of this great land imbued with the spirit of forestry and to put them in touch with the movement to make country life more attractive. The great promise is with the children of to-day, who are to be the leaders of a greater to-morrow.

The one thing now necessary, so long as so many country school grounds are treeless, is to dig, rather than sing. How long is the policy of neglect to continue? If the children merely carry out a formal program of recitations and songs, and the grounds surrounding the house continue barren of trees, flowers and shrubbery, Arbor day is not observed in the proper spirit.

The country school grounds should represent the highest ideals of the community and should be as attractive as the best farm home of the district.

For seven years I have been carrying on an educational campaign through the schools to educate the school and home to a greater appreciation of trees. It would make this article too long to tell all that has been done. Much remains to be done. The following will indicate a few of the steps in this campaign:

1. Printed matter issued by the Department of Agriculture, especially the bulletins on tree planting and for-

estry. Farmers' Bulletin, No. 134, Tree Planting on Rural School Grounds, was sent to 300 teachers, 350 school officers, and 1,000 farmers.

2. Use of the camera and printing press by the County Superintendent of Schools. His illustrated annual reports of 1902, 1903, 1904, 1905, and 1906, show the beauty of streams and roadsides of Winnebago county. In these reports are contrasts of school grounds and farm homes. Plans have been given for planting. Short articles on trees, etc., were published. The annual report for 1906 cost \$1,035 for 6,000. It was mailed into every home, both country and village, in the county outside of the city of Rockford.

All editions previous to 1906 have long since been exhausted. A State Superintendent of a Southern State wanted 200 copies each of 1902, 1903, 1904, and 1905 reports. They were not available.

3. Stereopticon lectures on trees, school grounds, etc., at teachers' institutes. The County Superintendent has over 500 lantern slides, many of them beautifully colored, of trees, school grounds, school room interiors, school gardens in country schools, work of a farmer boys' experiment club, traveling libraries, consolidation of country schools, etc., etc.

4. In six years 84 traveling libraries, representing 4,565 volumes and costing nearly \$2,400, have been built up for the country schools. In these libraries are placed books on trees, forestry, agriculture, flowers, birds, gardens, bound volumes of Country Life in America, etc., etc. Every child who reads six books during the year is

given a library diploma at the township exercises in June. In 1906 thirteen hundred library diplomas were given. In the course of a few years the reading habit will be so established that children will desire to read good books after they leave school. As respects book-learning, the great majority of the country children of the United States obtain no other education than what they receive from the district school. This is one reason why the country school problem is the greatest educational problem of the century. Ten cents are charged at these township exercises and the net proceeds go toward the traveling library fund. Nearly \$1,700 were raised in this way in six years. The county board of supervisors gave \$700 additional.

5. A fifth means of waging a campaign for trees has been the cooperation of the Horticultural Department of the Illinois College of Agriculture and the daily press of the city of Rockford. I sent photographs of five school buildings, three of them one-room country schools, and two of them village schools, to Professor Blair, horticulturist, at the Illinois College of Agriculture. He had his assistant, A. Phelps Wyman, landscape artist, prepare planting plans for each of these buildings, free of charge to me. I then had cuts made for use in the Rockford newspapers, prepared articles for the *Daily Republic*, *Register-Gazette*, and *Morning Star*. These were printed during the week of our Annual Teachers' Institute, which was March 25-28, 1907. Mr. Wyman and the county superintendent also used these plans in slide form in stereopticon lectures to teachers and school officers during that week. The following from the Rockford *Morning Star* for March 26th, shows the cooperation of the press:

#### "ARBOR DAY CELEBRATION

"GOVERNOR DENEEN DESIGNATES APRIL 26 AS DAY FOR PLANTING TREES AND BEAUTIFYING GROUNDS.

"Friday, April 26, has been designat-

ed by the governor of Illinois as Arbor Day. Surely this day should be observed so long as country, village, and city school grounds remain desolate. Trees, vines, shrubs, and flowers cost but little. And if planted right and taken care of after planting they will give back in the general enjoyment far more than the first cost. The *Star* is glad to have a part in the movement for greater civic beauty in Winnebago county.

"Trees have an educational as well as an ornamental value. Country people as a rule do not realize how deeply children are impressed by the natural world around them. The school is or should be the center of the life of the community. This center of influence should be made as attractive and powerful as possible. A pretty and attractive school ground and house are an incentive to good work. Shall the improvement of the school grounds be left to a general and faithfully executed policy of neglect? Is the country school so insignificant that it is not worthy of attention? Far from it. It is "the most tremendously significant thing in the whole history of the United States. It is the cradle of American education, the nursery which has fostered and still fosters the national doctrine of equal rights to all."

"The illustration of a country school house here presented is union district No. 144, Seward township. Part of the district is in Stephenson county, tho the house is in Winnebago county. The planting plan was prepared by Professor A. R. Wyman, landscape artist in connection with the Department of Horticulture of the Illinois College of Agriculture at Urbana. This was done at the personal request of Supt. O. J. Kern. He is endeavoring to create a sentiment for better things surrounding the country school house, and the College of Agriculture in all its departments of work gladly cooperates with him.

"Credit must be given the directors of this district for a great improvement of the interior three or four years ago. Over 40 children are enrolled here, and

it is safe to count that 90 per cent of them never will go outside of this district so far as schooling is concerned. How important then that the most possible be made of the time and opportunity. In an educational way no finer

thing could be done for the children here and in other schools than to train them to a keener appreciation of nature. Trees, vines, shrubs, and flowers do exercise an influence for right living and right thinking. Ofttimes



Part of the native forest surrounding a Winnebago County country home. The owner did not cut down these trees for fuel to save a few dollars expense.

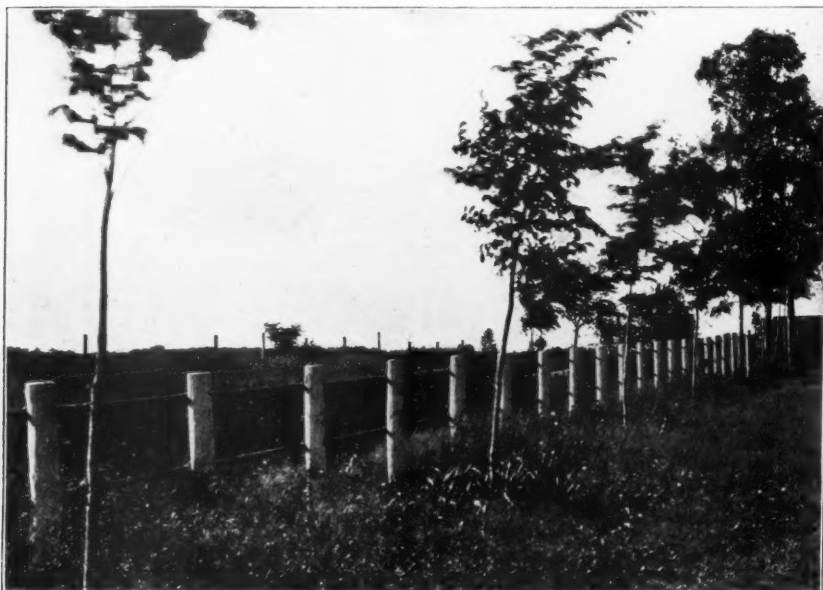


A country school-yard in Winnebago County, where the native forest trees were preserved just as nature planted them.

these are more powerful than the pages of the text book studied in the school. These children are influenced by their environment far more than adults imagine.

"It is not strange that when a boy reaches the age of fourteen he refuses longer to associate with the old school house with its blank walls and desolate yard. He feels the restraint of his environment. He is beginning to see life in a different light, and quits

"The opportunity is a fine one for the country people to meet at the annual school meeting and instruct the school officers to spend a little money for paint, trees, vines, and shrubs. The teachers and children will plant flowers and take care of trees if they meet with any encouragement from school officers and patrons. The planting sketch here given should be followed out at district No. 144. It is suggested for consideration by the people of

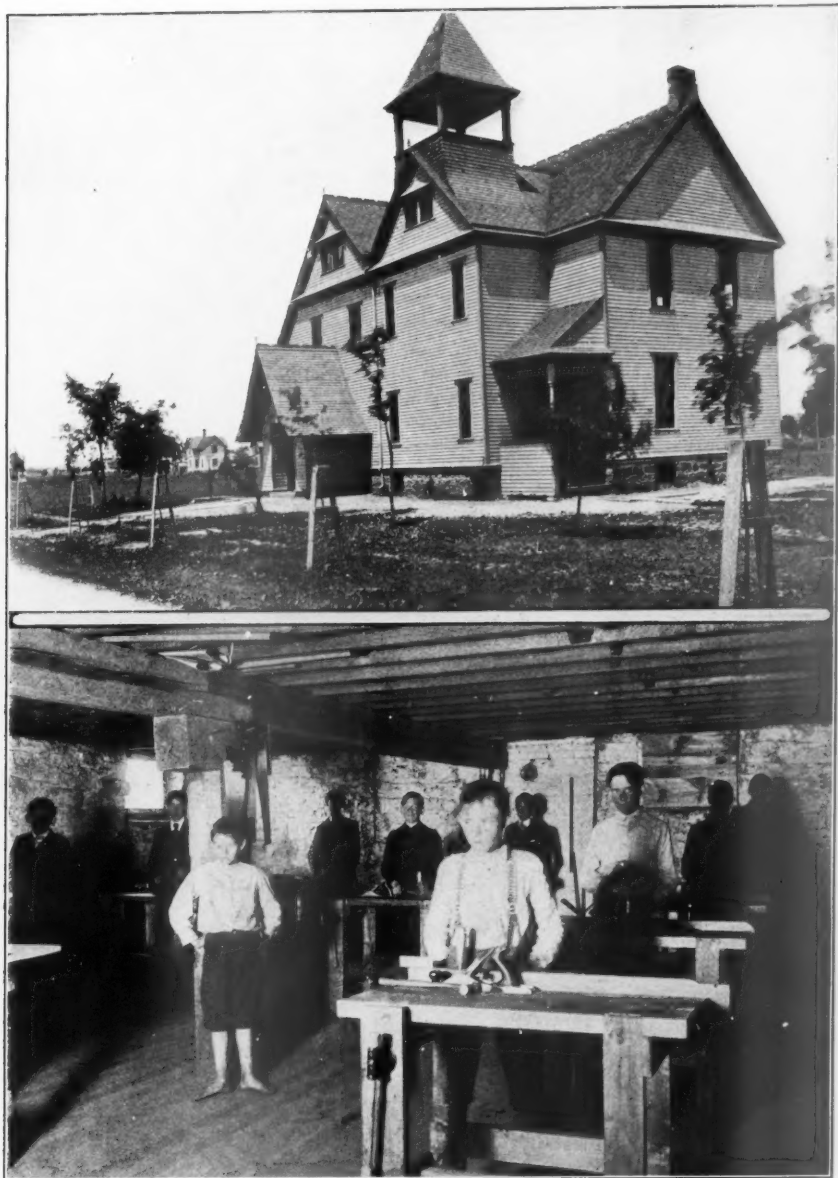


Tree planting at District 114, Winnebago County. Twenty elm trees were planted here and a neat fence put up. The children had their flower gardens around each of these trees, and thus helped to cultivate the trees. This illustration is taken from Supt. Kern's 1905 Report.

school for good or his father moves to town where his children may have better opportunities both in school and out. The secret of keeping more boys satisfied with the farm rests primarily with the character of the school house and surroundings. Let us go to nature and learn the alphabet of beauty. The A, B, C of planting is: (A) leave open spaces, put planting on sides; (B) plant in masses; (C) avoid straight lines.

many other districts in Winnebago county whose school grounds are far from attractive. \* \* \*

"Thursday, March 28, is school officers' and patrons' day at the Annual Teachers' Institute Memorial Hall. All are invited to meet with the teachers and hear State Superintendent Blair. Professor Wyman, mentioned above, will give a stereopticon lecture of much interest."



MANUAL TRAINING IN THE BASEMENT OF DISTRICT NO. 68, THE NORTH END SCHOOL, MR. JOHN REICHARDT, PRINCIPAL.

The boys in the manual training room made the guards around the trees as shown in the upper part of the picture. Once a week Mr. Reichardt takes all of the boys of the two upper rooms for manual training work. While he and the boys are in the basement, his assistant, Miss DeWitt, has charge of all the girls of the two upper rooms for instruction in household arts. From Kern's 1906 Report.



IN THE OPEN.

A country scene in Winnebago County. From Kern's 1906 Report. Winnebago County has much natural beauty, and Mr. Kern is endeavoring to have the country schools reflect the beauty of stream, woodland and roadside and have the children learn to love trees by planting and caring for them.



District No. 115, Winnebago County. From Kern's 1906 Report. The people here in the past observed Arbor Day in the proper spirit. There are forty fine trees around the sides of the ground, leaving a fine, open space for lawn and playground.





Noble elms spared by the telephone company. From Kern's "Among Country Schools," Ginn & Co., Boston, and from his 1905 report. The owner stood by and protected these trees. The wires are insulated as they pass through the branches. Not a single branch was cut. These two trees stand by the side of a country road in Winnebago County.



District 144, Seward Township

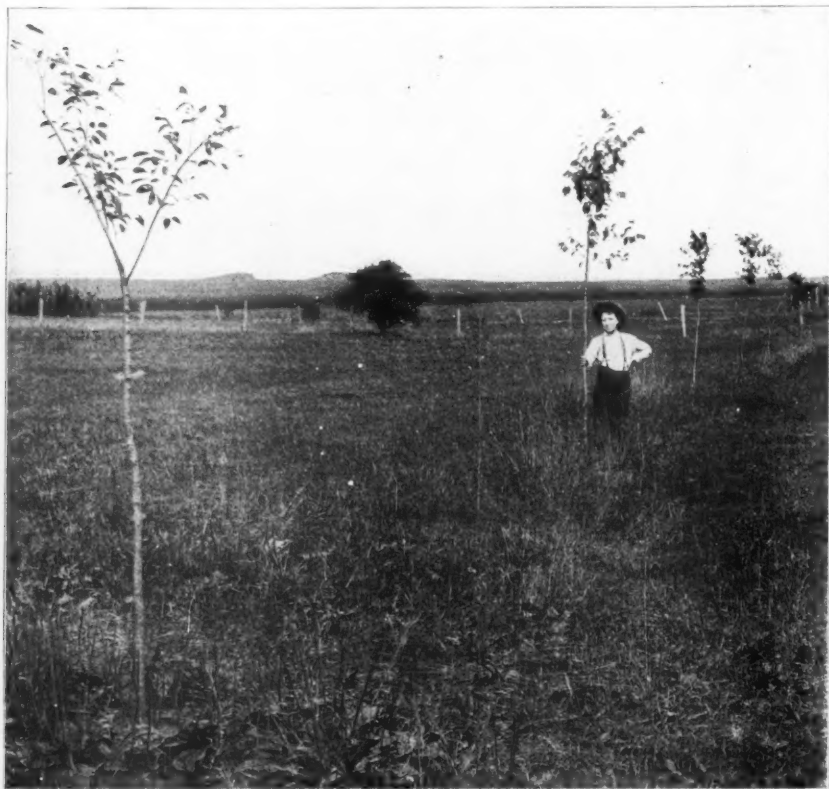
## A RANGER'S CABIN

As an appropriate accompaniment to the article by Supervisor Shinn, of California, and for information and suggestion, there is reproduced in this issue (on page 259) a cut of a ranger's quarters, in Colorado.

This is the first ranger's quarters built in the Wet Mountain National Forest. This house is 26 by 28 feet inside, and contains four comfortable rooms. It was finished March 7, 1907. Figures are given showing the actual

cost of the house furnished complete for actual use.

This house is located in the South Hardscrabble Canon, District No. 1 of the Wet Mountain National Forest, and was constructed by Rangers Geo. H. Cress, Frank H. Wagner, and O. S. Mackelfresh, under the supervision of Eugene Williams, Forest Supervisor, Wet Mountain and San Isabel National Forests.



Twelve elm trees set out here at District No. 80. The boy is a member of the Winnebago County Farmer Boys' Experiment Club, and took the first prize of \$15 in gold for the best ten ears of high-bred corn raised by himself and exhibited at the farmers' institute. From Kern's 1905 Report.

(See page 247.)

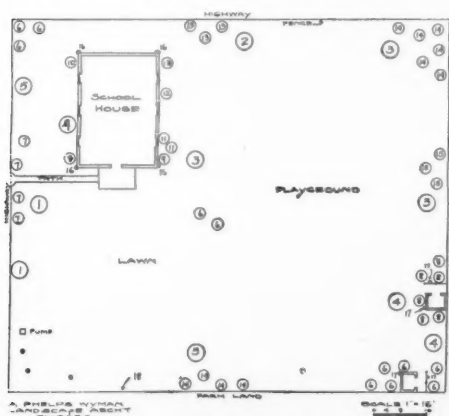
*Materials and Cost.*

6,000 ft. rough lumber, at \$12.75	
per M. B. M., including chopping, logging, sawing, and hauling ten miles.....	\$76.50
360 ft. finishing lumber, at .06	
per foot .....	21.60
11,500 shingles at \$3.50 per M.	40.25
5 windows 10x14 lights at \$2.75	13.75
5 doors at \$2.50 per door .....	12.50

Locks, hinges and window catches.....	4.50
340 pounds nails at .04.....	13.60
350 brick at .01½ .....	5.63
6 bushels lime at .50 .....	3.00
10 gallons oil at .75.....	7.50
30 pounds white lead .....	3.00
½ square felt-roofing.....	2.25
3 pounds lamp black.....	.75

Total.....\$204.83

DISTRICT 144 · SCHOOL GROUNDS.  
WINNEBAGO CO ILL.



- PLANTING LIST
1. AMERICAN LINDEN
  2. CATALPA
  3. ELM
  4. SYCAMORE
  5. ASH
  6. COMMON LILAC
  7. FOELSYTHA FORTUNEI
  8. PINK GEANSE
  9. SPREAD VINE HOUTTEI
  10. PERSIAN LILAC
  11. SPANISH A. WATERER
  12. JAPANESE BARBERRY
  13. WESSLA
  14. RED BRANCHED DOGWOOD
  15. COMMON ELM
  16. BITTER SWEET
  17. WOODVINE
18. BITTER SWEET OR WOODVINE AT EACH FENCE POST

**Suggested Plan for Planting**

(See page 250.)



Norway Poplar—Eight year old trees on hill in rather dry location

(See page 239.)

# THE TIMBER TESTS OF THE FOREST SERVICE

BY

R. S. Kellogg, Forest Inspector, Forest Service

For a number of years the Forest Service has been engaged in making tests to ascertain the strength, stiffness, and other mechanical and physical properties of the principal American woods. These tests are usually made upon timber in commercial sizes such as are found upon the market and are in every-day use; also, to some extent, upon manufactured products. Through the cooperation of several universities the Forest Service has had the use of five laboratories for this work; the cooperating universities in each case furnishing the laboratory and some or all of the equipment, the

Forest Service paying the engineer in charge and the running expenses. These laboratories are at the Yale Forest School, New Haven, Conn.; Purdue University, Lafayette, Ind.; The University of California, Berkeley, Cal.; the University of Oregon, Eugene, Ore., and the University of Washington, Seattle, Wash.

Some of the most important tests that have been made in the last few years are those upon longleaf pine, loblolly or North Carolina pine, Douglas fir, western hemlock, Norway pine and tamarack. These tests have been upon large sized timbers,

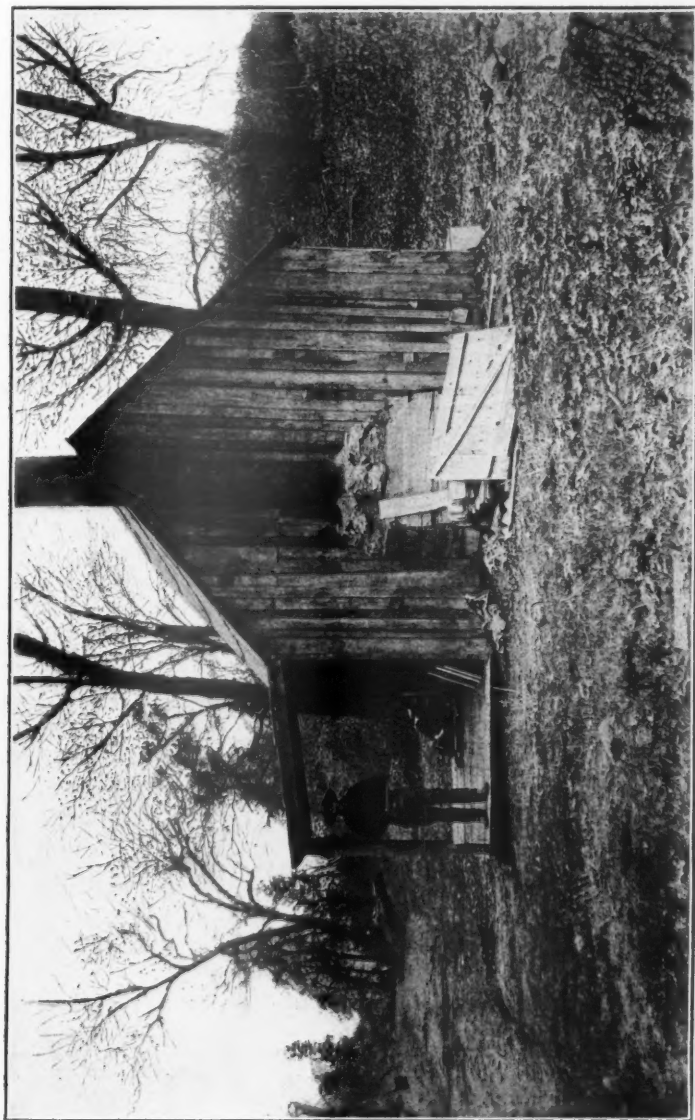


Forestry Short Course Students, Colorado Agricultural College

(See page 235.)

usually in the form of bridge stringers; and, in addition to giving data upon which to base calculation, they show clearly the relative value of these important structural timbers and fur-

nish a scientific basis for grading specifications. Douglas fir, for instance, which only a few years ago had little standing in the market, has been proved to be nearly as strong as long-



Old Style Ranger's Cabin, 1904, called "Whip stock"—Sierra Reserve  
(See page 240)



**A Ranger's Cabin and Children**  
(See page 240.)



**Peace Cabin, Sierra National Forest**  
(See page 240.)



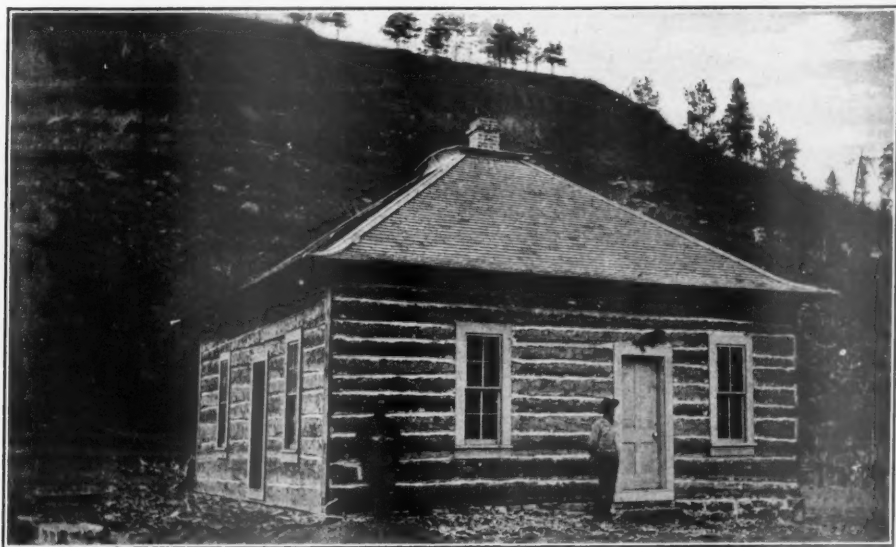
leaf pine and is a satisfactory substitute for it in a large number of cases. Car builders' specifications now commonly call for longleaf pine or Douglas fir. Western hemlock, a wood which through ignorance of its real properties, has been despised and forced to go upon the market under some other name, if at all, shows under test to be practically as strong as loblolly pine, and suitable for many purposes except the heaviest construction.

The tests also bring out clearly the effect of rate of growth, knots and other defects upon strength. In large timbers the position of a knot is generally more important than its size. A knot upon the upper face of a beam, for instance, may have little or no injurious effect, while a similar knot upon the lower face may reduce the strength greatly.

Other tests have been made to ascertain the effect of preservative treatment, such as creosoting, and the influence of various methods of seasoning. Within certain limits, other fac-

tors remaining constant, the strength of a given piece of oven-dry wood—that is, wood which does not contain over one per cent of moisture, may be three or four times as strong as the same wood when green, and a piece of air-dry wood containing, say, 15 p. c. of moisture, may be twice as strong as when green, but tests show that with large timbers the added strength which is secured by seasoning is so largely offset by the weakening effect of checks and shakes which develop in the process that, as a rule, it is not safe to count upon a strength in use greater than that of the green wood.

Other important tests have been those upon California eucalyptus, which show that these woods compare most favorably with the strongest eastern hardwoods and indicate the possibility of their being used for many purposes where great hardness and strength are required; those upon packing boxes of white, loblolly, and shortleaf pine, red gum, cottonwood, western spruce, and western hemlock,



Ranger's Quarters—Wet Mountain National Forest

(See page 254.)

which show that cottonwood will on the average make the strongest box; those upon wagon poles of longleaf pine and white oak, wagon axles of hickory and maple and buggy spokes of white and red hickory from which many conclusions of practical value

can be drawn, and which, among other things, show that red hickory which has been commonly considered of inferior quality is fully as strong as white or so-called "second-growth" material.

Some of the methods and results

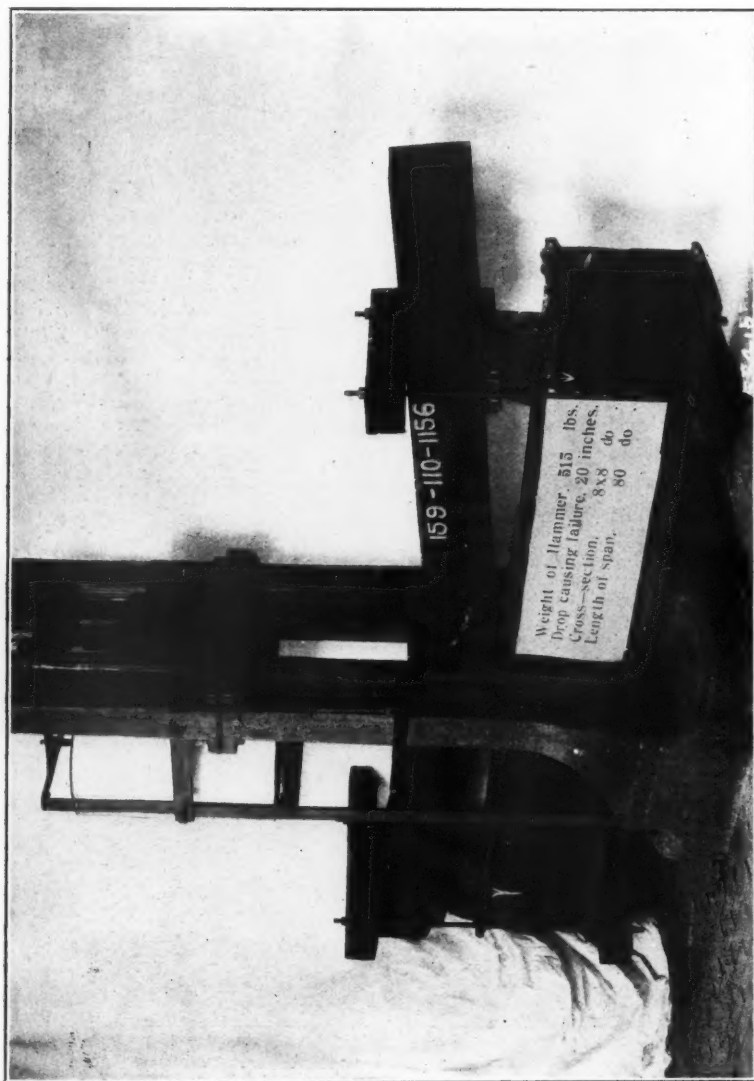


Fig 1.—Testing a yellow pine bridge tie, impact loading.

of testing are shown in the illustrations. Fig. I gives a bridge tie of western yellow pine which was broken by the blow of a 515-pound hammer falling 20 inches; Fig. II shows a similar piece of timber tested under gradual loading which sustained a

maximum load of 23,580 pounds concentrated at two points equally distant from the center and one-third of the span apart; Fig. III shows an 18 by 20 by 30 inch white pine packing box which sustained a maximum load of 1,370 pounds applied at diagonally

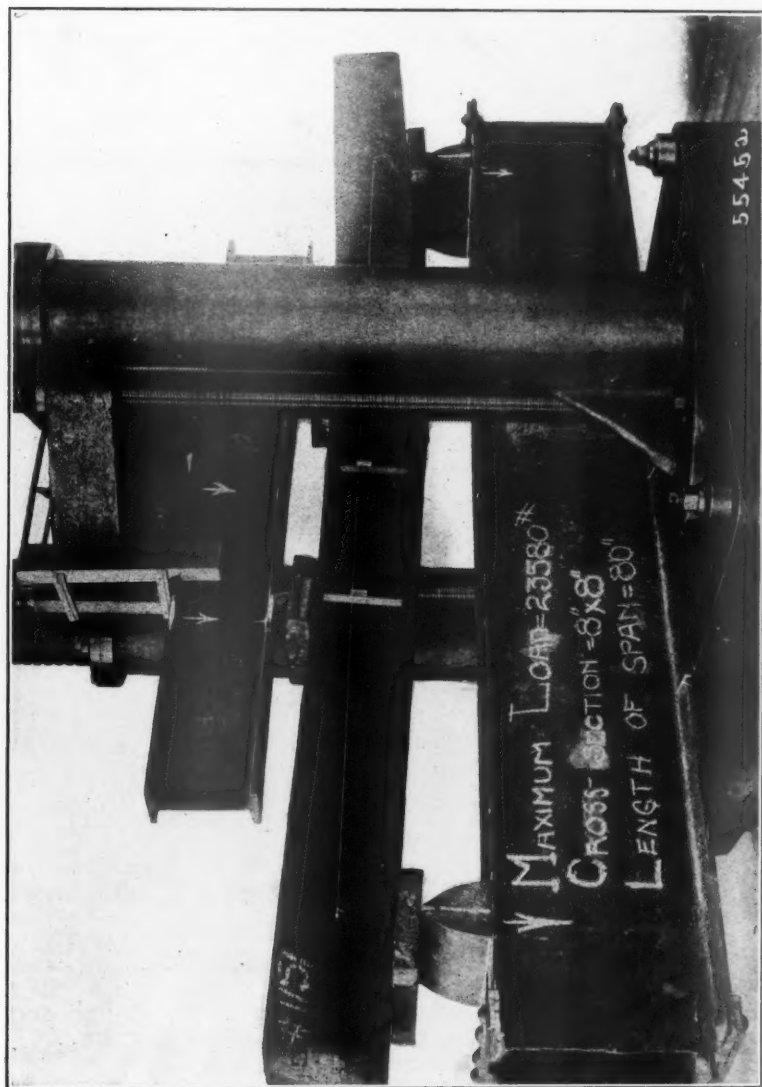


Fig. II.—Testing a yellow pine bridge tie, gradual loading. Load applied at third points.

opposite corners; Fig. IV shows the manner of testing a hickory buggy spoke, and Fig. V shows the results of torsion or twisting tests upon sticks

of red gum and four commercial grades of hickory.

The timber tests so far made have been of the greatest value in ascer

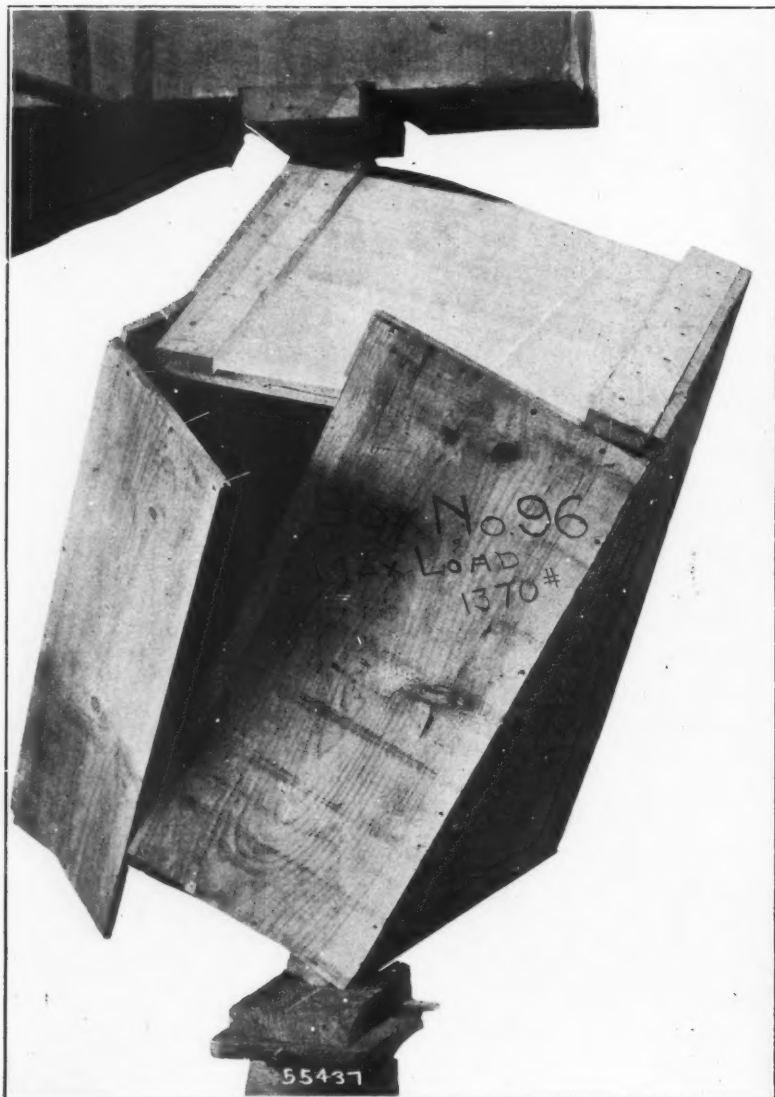


Fig. III.—Testing a white pine packing box, gradual loading

taining the properties of the woods tested and in indicating the purposes for which these woods are best suited. It is important that they be

continued until all American woods which are obtainable in commercial quantities have been tested and their relative values determined.

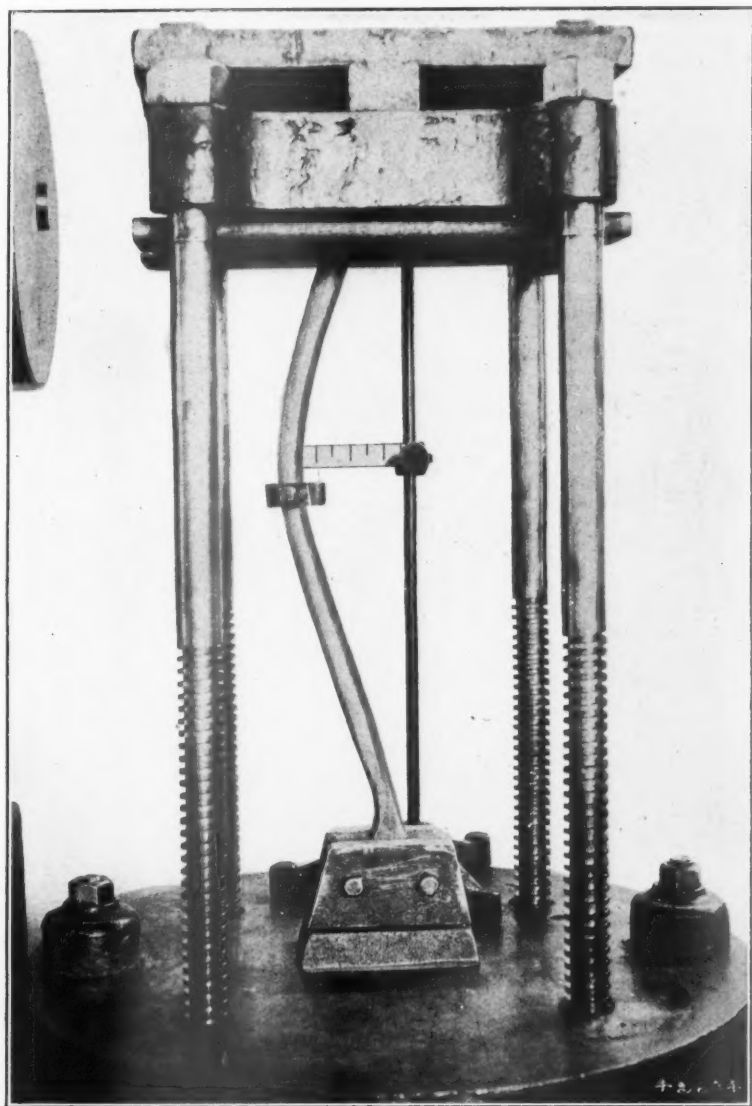


Fig. IV.—Testing a hickory buggy spoke

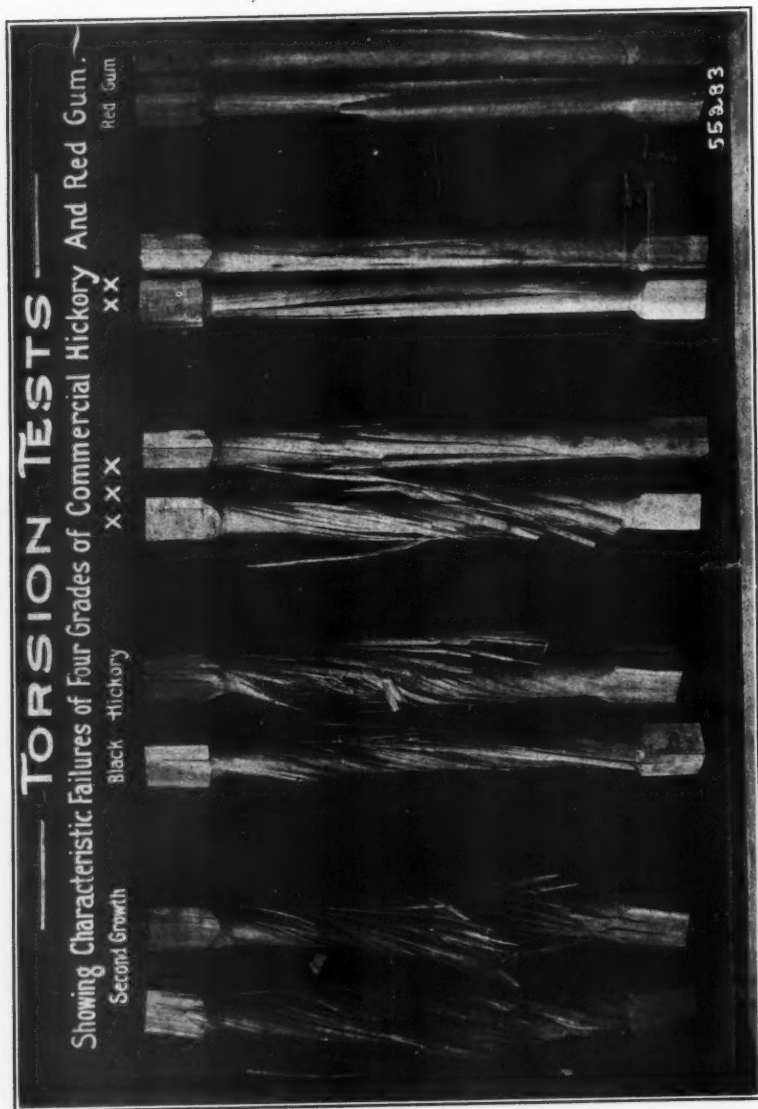


Fig. V.—Results of torsion or twisting tests upon sticks of red gum and four commercial grades of hickory



# THE PRESIDENT TO THE SCHOOL CHILDREN ON CONSERVING THE FORESTS

On April 15th President Roosevelt addressed to the school-children of the United States the following admirable letter:

"To the school children of the United States:

"Arbor Day (which means simply 'Tree Day') is now observed in every State in our Union—and mainly in the schools. At various times from January to December, but chiefly in this month of April, you give a day, or part of a day, to special exercises, and perhaps to actual tree-planting, in recognition of the importance of trees to us as a nation, and of what they yield in adornment, comfort, and useful products to the communities in which you live.

"It is well that you should celebrate your Arbor Day thoughtfully, for within your lifetime the nation's need of trees will become serious. We of an older generation can get along with what we have, though with growing hardship; but in your full manhood and womanhood you will want what nature once so bountifully supplied and man so thoughtlessly destroyed, and because of that want you will reproach us, not for what we have used, but for what we have wasted.

"For the nation, as for the man or woman and the boy or girl, the road to success is the right use of what we have and the improvement of present opportunity. If you neglect to prepare yourself now for the duties and responsibilities which will fall upon you later, if you do not learn the things which you will need to know when your schooldays are over, you will suffer the consequences. So any nation which in its youth lives only for the day, reaps without sowing, and consumes without husbanding, must expect the penalty of the prodigal, whose labor could with difficulty find him the bare means of life.

"A people without children would face a hopeless future; a country without trees is almost as hopeless; forests which are so used that they cannot renew themselves will soon vanish, and, with them, all their benefits. A true forest is not merely a storehouse full of wood, but, as it were, a factory of wood, and at the same time a reservoir of water. When you help to preserve our forests, or to plant new ones, you are acting the part of good citizens. The value of forestry deserves, therefore, to be taught in the schools, which aim to make good citizens of you. If your Arbor Day exercises help you to realize what benefits each one of you receive from the forests, and how by your assistance these benefits may continue, they will serve a good end.

"THEODORE ROOSEVELT."

Tree planting which, until a few years ago, was limited to the treeless portions of the middle west, and to certain localities in New England, is now being carried on extensively throughout New England and other eastern States. Under the offer of the Forest Service to cooperate with planters of trees, plans have been completed for the planting of thousands of acres, representing 172 localities in 29 States and Territories.

Arbor Day is a legal holiday in Arizona, Maine, Minnesota, New Mexico, Wisconsin, and Wyoming, the day being set by the governor; in Texas, February 22; Nebraska, April 22; Utah, April 15; Rhode Island, May 11; Montana, second Tuesday in May; Florida, first Friday in February; Georgia, first Friday in December; Colorado (school holiday only), third Friday in April; Oklahoma, the Friday following the second Monday in March.



## The Month in Government Forest Work.

### Criminal Trespass by Grazing

In the case of U. S. v. Odeaga Domingo *et al.*, United States District Judge Beatty has decided that it is a crime to allow sheep to graze in the National forests without a permit. Domingo, together with three herders, wilfully drove sheep on the Sawtooth National Forest in Idaho during last August, and was arrested by forest rangers. He demurred to a criminal indictment and contended that the regulations of the Secretary of Agriculture made under the authority of the Act of June 4, 1897, are unconstitutional, on the ground that Congress has no right to delegate its power to legislate. Judge Beatty, however, says that this act does not come under that rule, because while "it is too well settled to admit any doubt that Congress cannot delegate to any other body or person any authority to legislate," nevertheless, "it is also as well settled that it may authorize an executive officer to formulate rules and regulations for the full and explicit enforcement of the law enacted, and according to its full intent and spirit. To discuss either of these questions would be a wasteful use of time."

### New Lead Pencil Cedars

All high-class lead pencils are made of red cedar wood, which comes from two varieties of native junipers. Now that the supply of these woods is so scarce that makers are glad to get lots of a few pounds where once they

obtained it easily by the carload, it has become necessary, not only to apply conservative management to the depleted forests but also to look for substitute materials.

Pencil makers have been doing this for some years, knowing that the supply of red cedar was being rapidly exhausted. The soft redwoods (*Sequoias*) of California, white cedar woods, and the much used Washington red cedar (shingle wood) have all been tried; but these woods do not have the soft texture essential for a high-class pencil wood. To be really excellent, pencil wood must cut with a soft, smooth feeling and the chip must give way easily. These rare qualities are dependent upon a cell structure which is microscopically fine and even throughout, and the Forest Service investigations have shown that a number of our southwestern, Rocky Mountain, and Pacific cedar or juniper trees have this structure. In order that these qualities might be brought to a test by pencil makers, samples of the wood and information as to where the trees abound, have already been furnished to such pencil manufacturers as have made inquiries of the Service. Still other suitable woods may be found as the study progresses.

### Extent of Grazing in Na- tional Forests

The total number of grown stock allowed to graze upon the National forests during the season of 1907, is as follows:

	Cattle and Horses	Sheep and Goats
Arizona .....	140,850	325,500
California ....	198,250	368,200
Colorado .....	313,850	430,250
Idaho .....	78,250	970,200
Kansas .....	5,000	5,000
Montana .....	133,700	264,000
Nebraska .....	45,000	.....
New Mexico ..	80,950	303,100
Oklahoma .....	3,500	.....
Oregon .....	100,500	781,000
South Dakota ..	25,000	.....
Utah .....	153,950	987,970
Washington ...	52,500	119,000
Wyoming .....	77,000	345,000
Total .....	1,388,300	4,895,020

The new National forests, upon which all stock that have regularly used the range in the past are allowed to graze during 1907 by payment of the fees, are located as follows:

Arizona.....	3	California ....	4
Colorado....	1	Idaho .....	5
Nevada.....	3	New Mexico...	8
Montana....	9	Utah .....	2
Wyoming...	1		

There are also new National forests and additions to National forests, created since March 1, upon which all stock that have regularly used the range in the past are allowed to graze free of charge and without permit during 1907, as follows:

New Forests	Additions
Colorado .....	1
Idaho .....	2
Nevada .....	1
Montana .....	3
Oregon .....	4
Washington ....	1
Wyoming .....	1

**New Sources of Turpentine** One of the most important recent discoveries is that commercial turpentine can be derived from practically all of the southern pines as well as from a number of western species, sources which have hitherto been discredited or unknown.

Since the earliest settlement of the South, the turpentine and rosin of

commerce produced in the United States have been obtained practically from one species of pine, the long-leaf or yellow pine, which has also yielded, and is still supplying, the most valuable lumber produced by southern forests. The consumption of long-leaf pine for these two great necessities has so far reduced the once immense supply of it, that, unless what now remains is very conservatively managed and extended, the end of a splendid southern resource is being rapidly approached.

The discovery, however, by Government investigations, that naval stores may be obtained by working other pines not hitherto tried, will materially lessen the draft which the long-leaf pine would otherwise have to meet for both lumber and naval stores. Further results are now being sought as rapidly as possible by practical field tests of the yield capacity of these untried pines.

**Owners Responsible for Drifting Cattle** In a case just decided by the Hon. William H. Hunt, Judge of the United States District Court of Montana, owners of livestock are held responsible if they suffer their stock to drift upon the National forests. It was declared that the National forests need not be fenced to exclude stock, no matter what the State law is, and that therefore it is illegal not only to drive stock upon the forests but even to permit them to drift there, unless the owner possesses a permit.

The decision is based upon article 4, section 3, of the Constitution, giving the United States exclusive power to dispose of the public lands and make rules and regulations respecting them.

**State Laws Improving** Interest in forest legislation is markedly increasing. Recently the Forest Service has been consulted in the interest of a number of States where the insufficiency of existing law is felt.

The bar association of West Virginia has been in quest of aid for a

general forest law for that State, and has received suggestions based on the experience of the Government and of other States. One of the requirements which the Forester feels to be essential is the certification of the qualifications of State foresters by the Secretary of Agriculture, as a means to securing competent technical men.

From New Hampshire has come a request for guidance in framing a general law for the organization of a forest office. The Governor of Tennessee has asked for information upon State forest legislation in general. A Senator from Oregon has complained of the deficiency of the State forest fire laws, and has been furnished with a copy of the California fire laws which were drawn under the supervision of the Service. Alabama is desirous of providing by law for efficient State supervision of her forests. The creation of the office of State Forester is being seriously considered in Illinois.

New Jersey and Pennsylvania are especially struggling with the difficulties of so taxing forest land as to encourage the permanent holding of forests for repeated crops; as against the practice, too often induced by present taxation, of stripping and abandoning forest land to escape over-burdensome taxes. In the case of Pennsylvania the existing tax exemption law, designed for this purpose, has been declared unconstitutional, and the advice of the Service is desired in framing a law which will stand.

#### **Wise Handling of Indian Lands**

Sales of timber aggregating ten and three-quarters million feet have secured to the Uinta Indians nearly \$28,000 under the Act of March 3, 1905. This law provided that any land in the Uinta Indian Reservation necessary for forest reserve purposes might be proclaimed by the President as part of the Uinta Forest Reserve. Ordinarily ten per cent of the gross receipts from this reserve business goes to counties within the reserve, but this special law gives to the Indians the entire timber sale receipts from these

lands for the fifteen years ending June 30, 1920. The area of this Indian land made a forest reserve, under the Act, was 1,010,000 acres.

The average price received per thousand feet in sales hitherto is \$2.50, though 2,227,000 feet was dead timber. Prices are rising, however. The last sale of green timber was made at \$5.53 per thousand, nearly the highest figure ever paid for timber in the history of Government timber sales.

It is confidently expected that through this administration of the former Uinta lands the Indians will receive from timber sales alone at least as much as they would have received for this land if it had not been included in the reserve and had been disposed of at \$1.25 per acre, as would have happened otherwise. Moreover, this arrangement returns their profit in the form of a steady income.

Finally, when the period of trusteeship ends in 1920, and the Indians have received full payment, the public will still possess in the land a productive forest, improved by correct management and producing timber of which the value will assuredly have been increased by the lapse of time and the growth of demand. The Indians themselves are allotted on lands dependent on irrigation, which would be greatly harmed if this reserve area were not maintained under forest.

**An Experienced Public Land Official** Mr. George F. Pollock, the former Assistant Commissioner of the General Land Office, has accepted a position in the Forest Service. It is no secret among the members of the Forest Service that Mr. Pinchot has wished for some time to secure for his own bureau the advantage of Mr. Pollock's intimate familiarity with public land questions and administration. A new position has now been created for him, which will put him in charge of all matters relating to public lands in National forests—claims, privileges, eliminations, etc.

Mr. Pollock entered upon his new duties at the Forest Service March 27th.



## Government Irrigation Work During the Month.

**A. P. Davis,  
Chief Engineer**

On the recommendation of Director Newell, the Secretary of the Interior has promoted Mr. A. P. Davis to the position of Chief Engineer from that of Assistant Chief Engineer of the Reclamation Service.

Arthur Powell Davis was born in Illinois on February 9, 1861. He was educated in the public schools of Junction City and Emporia, Kansas, and later completed an engineering course in the George Washington University. At the age of 23 he entered the United States Geological Survey as a member of the topographic branch, and since then has been closely identified with the topographic, hydrographic and engineering work of the Government. His early work was in the west, where he spent several years in surveying reservoir sites in the high mountains and in measuring the streams of the Great American Desert. His name is attached to many of the original maps of Arizona, New Mexico and California. The reports of his investigations are valuable contributions to our knowledge of the arid country and its possibilities, and have been of especial value in the preliminary work of the Reclamation Service.

In 1898-1900 Mr. Davis had charge of the hydrographic work of the Nicaragua and Panama canal routes, and his report furnished much needed and important information concerning both plans. He joined the Reclama-

tion Service immediately after the passage of the Reclamation Act, and since that time has been closely identified with all of the engineering work connected therewith.

Mr. Davis is a man of indefatigable industry, clear judgment, and sound common sense; and these, combined with a thorough understanding of the principles of engineering design, admirably fit him for the responsible position to which he has attained. His promotion is regarded by the engineers of the Reclamation Service as a just reward for faithful and efficient work.

### **A Pause in Reclamation Work**

The active industrial development in the far west is giving the Reclamation Service a great deal of difficulty at the present time.

With every part of the inter-mountain country enjoying a remarkable building boom, the Government finds itself unable to secure reasonable bids on its big irrigation works. The large contractors are all loaded up with railroad work, while the smaller contractors have all they can do to take care of the local demands of cities and towns.

Many contracts of the Government have been advertised several times without securing reasonable bids. For instance, the contract for canal structures on the Lower Yellowstone irrigation project has been advertised twice. In order to make the contract more attractive the Secretary author-

ized informal proposals for the construction, either in small divisions or as a whole; but only one bid was received, and this was regarded as entirely too high and was rejected. The Secretary of the Interior has now authorized the Reclamation Service to do the work by force account.

In general, however, the present time is unpropitious for the Government to undertake the work itself. The cost of all kinds of material has increased enormously. Cement and lumber have nearly doubled, while horses and mules cost fully twice what they did three years ago.

There is an unusual scarcity of labor; wages are from 40 per cent to 60 per cent higher than two years ago, while efficiency has been decreased. Owing to the remoteness of much of the government work, labor is not attracted, and as a rule the Government gets only the leavings, or the most undesirable class of labor. The steady and skillful workers are all busy.

The troubles of the contractors in the matter of shipping materials are shown by the experience of one contractor, who ordered a shipment in November and loaded it on cars, detailing a man to follow the car and expedite early delivery in every way possible. Notwithstanding all these precautions more than three months elapsed before the materials were received at their destination, only a few hundred miles away.

The Secretary of the Interior has issued the following general instructions to the Director of the Reclamation Service:

"1. Concentrate on and give preference to the works upon which construction is nearly completed, and where the projects will soon be producing revenue.

"2. Discontinue further expenditures for general investigations.

"3. Arrange wherever practicable for the reduction or suspension of work on projects which are so located that favorable bids for construction have not been secured.

"4. Recommend for restoration to entry all lands now reserved under the terms of the Reclamation Act, the reclamation of which cannot be undertaken in the near future; withholding, however, all reservoir sites or lands which may be required for rights of way for future works whose practicability has been determined."

In explanation of these instructions the Secretary said:

"Conditions have altered so materially since the first estimates of cost of construction were made and the allotments of the fund approved, that I have deemed it advisable to direct that a reduction of the work in some instances and a suspension in others be considered. It would be most unwise to continue work where circumstances are so disadvantageous or to incur expenses which in the future may be considered as unduly large.

"By concentrating on those works now nearing completion, new revenues will be coming into the fund; and when the labor conditions and transportation facilities become normal the work on other projects can go forward more economically and with greater rapidity. The expenditures during the past quarter have averaged about \$1,500,000 a month. At this rate the funds available for new construction will be exhausted before the end of the calendar year."

**Proposals Wanted on Contracts** The Secretary of the Interior is asking contractors to submit bids for the construction of about 66 miles of lateral ditches with structures, in connection with the Belle Fourche irrigation project, South Dakota.

The work involves approximately 545,000 cubic yards of excavation, 1,960 cubic yards of concrete, and 110,000 feet B. M. of lumber.

Plans, specifications, and other information may be obtained from the Reclamation Service, Washington, D. C., Crawford, Nebraska, or Belle Fourche, S. Dakota. The proposals will be opened at Belle Fourche, April 30th.



On April 30th proposals for furnishing 350,000 pounds of steel for use in connection with the Belle Fourche irrigation project, will be opened at Belle Fourche, South Dakota. This steel will be used for reinforcement of concrete, and the Secretary of the Interior is asking contractors to submit bids. Particulars may be obtained at the office of the Reclamation Service, Washington, D. C., Belle Fourche, South Dakota, or Crawford, Nebraska.

Contractors are being invited to submit proposals for furnishing steel work for two sixty-foot span steel highway bridges, for use on the Shoshone irrigation project, Wyoming.

The bids will be opened at Washington, D. C., on May 15th. Particulars may be obtained from the Chief Engineer of the Reclamation Service.

Contractors are being asked to submit proposals for the construction of a dam at the outlet of Bumping Lake, Washington, involving about 182,000 cubic yards of excavation, about 960 cubic yards of masonry, about 900 cubic yards of rip rap and rock fill, and about 72,000 feet B. M. of hewn timber.

This is one of the storage dams to be constructed in connection with the Yakima irrigation project. Particulars may be obtained at the office of the Reclamation Service, Washington, D. C., Portland, Oregon, or North Yakima, Washington. The bids will be opened at Portland, Oregon, on July 1st, 1907.

#### Rejoicing in New Mexico

New Mexico is preparing for a unique celebration to take place July 3d, 4th, and 5th, at Carlsbad. This

celebration was authorized by the legislature, and the expenses will be borne by the territorial treasury, its purpose being to commemorate the beginning of Government irrigation in the territory.

In authorizing the celebration the New Mexico legislature passed resolutions carrying a vote of thanks to F. H. Newell, the Director of the Reclamation Service, to the Supervising Engineer, whose faithful and efficient services have been an important factor in bringing about the desired results, and to other officials of the Service in the territory. It is expected that the Secretary of the Interior, the Governor of the Territory, the Director of the Reclamation Service and other prominent officials and citizens will be present at the celebration.

The Territory of New Mexico has been especially fortunate in the amount of work and attention devoted to it under the terms of the Reclamation Act, three projects having been approved, and two practically completed in the past three years.

**Indian Lands Among Those Reclaimed** In connection with the Laguna dam the Reclamation Service has come in close contact with the Indian Office, not only because the special statute relating to the Yuma Project provides for including the Indian lands in the project, but also because it has been necessary for the Service to perform much of its work upon the Indian reservation, and to use some of the resources which are available upon the reserve. The Indian office is working in close cooperation with the Reclamation Service in this, as in other matters.



## Advertising Offers FOR May Readers

**W**HEN laying the corner-stone upon which the structure of our Republic was built, none were wiser and more far-seeing than our first President, who realized the necessity for a seat of Government which would keep pace with and reflect credit upon our nation through all phases of its future growth. Notwithstanding the jocular comments of his contemporaries, with the single exception of Thomas Jefferson, and with forethought and wisdom that the test of time has demonstrated, Washington plotted and planned, laying out streets, avenues, parks and circles upon what was then vacant farming land; and who can doubt that as he worked a prophetic vision of the beautiful Washington of today reflected itself upon his mentality.

**W**ASHINGTON is now the cosmopolitan city of the western world, and bids fair with age to rival the famous cities of Europe. In the past few years it has become the favorite home place of many of America's most distinguished sons, and its growth has been remarkable. Many fine homes and elegant public buildings have been planned and are under construction; in every direction acre property has been subdivided and laid out in lots; and on every hand hundreds of little homes are rapidly being built and occupied. It is claimed that there is no better investment anywhere today than in Washington real estate, and in support of this claim it is urged that Washington is a national city controlled by our National Government, without politicians and without boodlers, without unjust taxation, and without all those petty exactions with which the property owners of other cities must contend. Opportunities to investigate Washington realty as an investment are offered our readers through our advertising columns this month, which also contain many announcements of interest.

**T**HIS is the season when a spirit of unrest comes over us all, and the wanderlust calls persistently, urging a change of scene and climate. For some the mountains and camps, for others the seashore and cities, but for all a change. In our advertising pages are to be found many desirable opportunities, from a vacation on a ranch with all of its frontier avocations and amusements, to a trip of over three months through Europe under the direction of an experienced traveler. Or, if your interest turns to business, do you want a body of fine timberland? Many such are offered through our columns, and some of them should surely interest you. Or shall it be a beautiful island? Or a fine summer residence? Or an automobile? Are you looking for books? Or something for the home or garden?

**G**LANCE through our advertising pages, and if anything offered should meet your wishes, all that we ask is that you mention our magazine in writing to advertisers. That is the only method through which our patrons can be certain of our value as an advertising medium.

## - REAL ESTATE -

**Englewood, N. J.**—The most beautiful suburb of New York, 30 minutes distant, high elevation, extensive western view of valley and mountains, all city improvements. Gentlemen's fine places extend along the slopes to the top of the Palisades. The native forest, combining with the scenery on Hudson river, presents a picture of marvelous beauty. Delightful situations for residences of high-class character—now on sale. For particulars address, E. C. Dillingham, 140 Nassau Street, New York.

**Better Than Savings Banks**—Buy a country place at El Nido, Va., in the Virginia Hills, six miles from Washington, D. C.; one-quarter acre lots and acre blocks; on line of Great Falls and Old Dominion R'y; depot on property; cheapest suburban property on any car line; prices within reach of all; easy payments; write or call on

I. R. HITT, JR.

302 Bond Building

Washington, D. C.

### CONNECTICUT AVENUE TERRACE

Fronts 1,000 feet on both sides of Connecticut Avenue, in the District, south of Chevy Chase Circle, right on the Capital Traction Car Line, and only one fare to any part of the City. The District engineers are now running a water main into the property, also planting shade trees on the Avenue front. We have a large force constantly at work improving the property and in a few days will begin grading and macadamizing streets, laying granolithic sidewalks, planting shade trees, etc. One house now under construction costing \$20,000, many more to follow. Money loaned to build. For illustrated plat and full particulars write, telephone or call.

ROBERT E. HEATER, MGR.

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267 acres in Puget Sound, Washington. This is an ideal property, only a few hours from Seattle and Tacoma. Exceptional soil, location and climate. Capable of high cultivation. Good house on the property. Suitable for health or pleasure resort, or for private estate. Perfect natural park. Fine timber—pine, fir and cedar. As beautiful as any island on either coast. For maps and particulars write to H. C. E., Box 183, Buffalo, N. Y.

**SUMMER RESIDENCE FOR SALE**, with all modern improvements, steam heat, 12 rooms, bath, gas and electric lights, large lawn, located on the ocean front. \$12,000; also Summer residences for rent. Send for booklet. B. R. Slocum Agency, Belmar, New Jersey.

**\$10 SECURES CHOICE N. Y. City Lot.** Balance easy terms. No interest. On rapid transit via Battery tunnel, in operation July, 1907. Big advance certain. Send for descriptive booklet, etc. J. F. Moerer, 41 Park Row, N. Y.

**FOR SALE**—2,010 acres oil, gas and agricultural lands in the Cherokee oil district, near Bartlesville, Indian Territory. This tract lies in a compact body in the oil section, and is worth more than the price asked for farming purposes alone. Exceptional oil possibilities. Price for the entire tract \$40 per acre. H. L. Wheatley, Bond Building, Washington, D. C.

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**WASHINGTON CITY** is leaping forward to a place among the great capitals of the world. Invest your money there, it will bring quicker and larger returns than anywhere else. The United States Realty Company owns land for nearly a mile on Pennsylvania Avenue, the same thoroughfare upon which the White House, the Capitol, the U. S. Treasury, the State, War and Navy Departments, and Congressional Library are located.

The Company's property is within fifteen minutes ride of the U. S. Capitol building, and in direct line of improvements. You can buy a lot for \$250, payable \$25 cash and \$5 a month. These lots are part of a beautiful elevated tract of land recently subdivided, from which you get a magnificent view of the city.

These lots are so near the city that you can, while standing on them, actually count the pillars in the dome of the Capitol.

Lots the same distance from the Capitol, which sold some years ago for \$250, now sell for \$10,000 or more, but you lost that opportunity to make big money with a small investment. Therefore, grasp this one before it is too late.

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Cut this out and mail to-day.

U. S. Realty Co., Washington, D. C.: Send me a plat of lots that I can buy for \$25 cash and \$5 per month.

Name

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## - REAL ESTATE -

### Real Estate

FLORIDA home at low price, comfortable house in Pine Highlands, delightfully pleasant; an ideal place for invalid seeking health. L. W. KERVAN 20 W. 27th Street, N. Y.

FOR RENT—Edgewood Cottage, Mt. Pocono, Pa. Ten rooms, completely furnished, modern improvements; two acres of ground, one-half shaded; large veranda; croquet, bowling, tennis privileges. G. M. Shoemaker, Mt. Pocono, Pa.

GENTLEMAN'S HOME For Sale—Modern house, high elevation; sanitary plumbing; two bathrooms, conservatory; electric lights; pure spring water; thirty acres of land bordering on lake; nine miles east of Hartford, Conn.; New Haven R. R. trolley service. For description and views, send to owner, R. P. BISSELL, Manchester, Conn.

FOR SALE—75,000 acres long leaf pine and two mills in Mississippi. W. N. Crouch, 100-101-102 Lumber Exchange, Minneapolis, Minn.

### Resorts

**The Moat Mt. House and Cottage.** Accommodates 35 to 40 guests. Special rates for May, June and September. Golf, tennis, croquet, river bathing. Beautiful scenery; pine grove near house. Modern plumbing. Long distance telephone. Situated on large farm. For terms and other information address,

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BROOKLYN, N. Y.

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JAMES RUDOLPH GARFIELD, Secretary.

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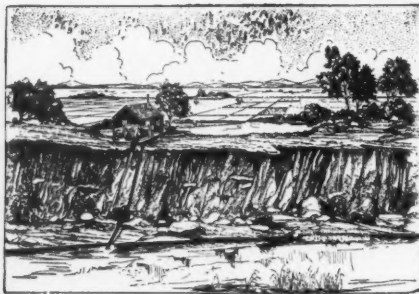
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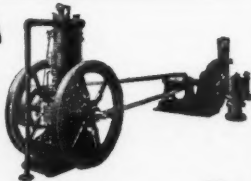
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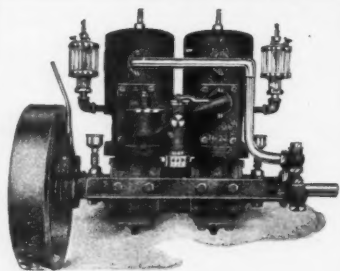
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